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THE IMPORTANCE OF THE RUBBER CONFERENCE.

WHEN the average layman attends an industrial exposition he does so usually for the purpose of getting as much information regarding that industry as possible in the briefest time. He goes from booth to booth and looks at the articles displayed, possibly asks a few questions, puts a little literature in his pocket, and after an hour's peregrination among the exhibitors, with perhaps a few minutes spent later in looking over the booklets he has put in his pocket, he gets a surface idea at least of the achievements of that particular industry. His knowledge does not go very deep, but it may suffice for the average man who is interested in that special industry, only as it is one of many that go to make up our industrial structure. Very likely, his hour spent among the exhibitors has increased his knowledge of that particular line of activity 500 per cent. It is education on the run, but it is much better than none at all.

But, in an exposition that is seriously conceived,

that is promoted with the intention, not only of showing to the casual visitor the product of that particular department of manufacture, but with the idea of making the exposition count for the general advancement of the industry, there must be something that will be new, interesting and informing to those whose work is vitally connected with that branch of endeavor.

That is precisely what was done in the case of the two London rubber expositions, held in 1908 and 1911. These expositions afforded a valuable fund of information on rubber matters to the general Londoner who attended, but they went far beyond that; they afforded an opportunity to the rubber man himself to add greatly to his knowledge of the subject. This was done by means of a series of conferences held during the progress of the exposition.

These conferences, presided over by Sir Henry Blake, were attended by hundreds of rubber men, and carefully prepared papers were read by those who were in a position to speak authoritatively on the topics discussed. Every phase of the varied rubber industry was taken up. Planters gave the result of the years of experience which they had had in planting rubber. All sides of the plantation problem were exploited; the best preparation of the soil, the best system of collecting and coagulating latex, the best method of taking care of labor, and many other interesting subjects were gone into in detail. Chemists of prominence and recognized authority discussed rubber from the standpoint of its chemistry and described the best tests—physical and chemical—to prove its quality. Men who had spent years in the research laboratories told of their work and of their discoveries. Financial experts talked about the factors that made for value in the rubber shares sold in the London market.

The carefully prepared papers were followed by general discussion that often widened out into channels that the author of the paper had not touched. To show how extensive was the work done at these conferences, it is only necessary to say that the book published after the last London exposition containing the various papers read, addresses made, and discussions that ensued, contained almost 500 pages—of most valuable matter.

At the first American Rubber Exposition, to be held at the Grand Central Palace, in New York, next September, the conferences, it can confidently be stated, will play a most important part. A number of those who

contributed most successfully to the valuable work of the London conferences will be in attendance, and, in addition, many who did not take part in London will be present and participate actively in New York. Many of the best-known rubber men abroad will be present and will bring important and valuable contributions, and many of the recognized leaders in the rubber world of America have expressed their willingness to address the conference.

It might be thought, possibly, that men who are engaged in experimental work would hesitate to give publicity in this way to the result of their researches and discoveries. Of course, there are always a few men who think they are the losers if they impart any information of value that has come to them through their own experience, but these men are in the minority. It is safe to say that most of the leading men in the rubber industry take a very broad view of this great department of human activity, and are very glad to contribute to its general advancement in any way they can. Rubber men who attend the New York Rubber Exposition may rest assured that they will not only see the most interesting collection of the physical products of the rubber world, but will be able, by attending the conferences, to carry away with them a great fund of new and valuable rubber knowledge.

CAN RUBBER BE PRODUCED IN THE UNITED STATES?

THE story of "Trinidad and Its Rubber," which appears on another page of this issue, written by the editor of THE INDIA RUBBER WORLD, during his recent visit to the West Indies, speaks particularly of the awakening among the rubber planters of that island to the fact that quite a number of their trees, which they believed were pure *Hevea Brasiliensis*, have proved to be hybrids. This has caused the planters not a little distress, because these particular hybrids are much less productive of good rubber than the pure *Hevea*; but it serves once more to bring up the general subject of hybridization with its natural suggestion of the possibility of such hybridization, or cross fertilization, or grafting as will enable some variety of the rubber-producing tree to be grown in the more southerly sections of the United States.

It is doubtful if a botanically pure *Hevea Brasiliensis* actually exists. There are 20 varieties of the *Hevea* along the Amazon; there are seven or eight varieties of *Manihot*

in the more easterly part of Brazil; and of *Castilloa* there are, north of the Amazon, probably 20 different varieties. Which of these many varieties represents the pure parent stock—if any of them does—it is impossible to tell. Hybridization seems to be the general law in the rubber family, and if it could be directed in such a way as to produce a rubber tree capable of withstanding such temperatures as we have in our more southerly States, a vast field for rubber planting would be opened at once.

The advantages of such rubber planting are too obvious to need enumeration. The most conspicuous may be referred to in a few words—the utilization of great tracts of land now practically going to waste; the easy solution of the labor, provision and sanitation problems that are so difficult in the Amazon country; a great decrease in transportation charges; freedom from exacting duties. All these and many other advantages point to the great desirability, if practicable, of rubber growing in our own country.

On the face of it, it does not seem necessarily impracticable. There are several plants indigenous to the United States that are quite closely related to the varieties of the rubber tree. Our ordinary milk weed, of which there are some 50 different kinds in the United States, is a cousin of the *Hevea Brasiliensis*, and some of its varieties, particularly those in Florida, that attain the size of a tree, bear something of a family resemblance. The mulberry tree, which grows readily in this country, is related to the *Ficus elastica* branch of the rubber family. With these distant relationships already existing, it would seem to be a not impossible task to establish a much closer relationship. It is a well-known fact that both hybridization and grafting produce a hardier plant than the original. Tropical roses have been grafted on the common American rose, and have thriven under our often frigid conditions. The peach, which grows so luxuriantly in Delaware and Jersey, certainly a cold territory in winter, was originally a tropical plant, coming probably from the south of China. Tropical oaks have been grafted on northern oaks and proved themselves able to withstand our rigorous climate. So why is it not possible for the rubber tree, to be induced by either grafting or by other means, to take up its home in Florida, Mississippi or Texas? It might not—probably would not—be as productive as along the banks of the Amazon, but if it were only one-half as productive, it would prove a great addition to our national wealth.

It is assuredly a subject worthy of the attention of the best minds connected with our government and State agricultural departments.

AUTO TRUCKS FOR NATIONAL DEFENSE.

THE United States Army has been experimenting for some time with the auto-truck as a means of conveying army supplies. These experiments have as a whole been very satisfactory, proving beyond argument the superiority, both from the standpoint of increased efficiency and of decreased expense, of motor trucks over that venerable but leisurely and not always reliable institution, the army mule. THE INDIA RUBBER WORLD, in its issue of November last, mentioned the experiments tried by General George T. E. Bliss in southern California. As a result of his tests he reported that in his opinion the time had come for the adoption of the motor truck for military service, and its gradual substitution for the escort wagon.

But the English War Department has gone a step further. It has given long and serious consideration to a plan for subsidizing all the motor wagons owned by private persons in England under an agreement by which they could all be purchased for a fixed sum by the government, whenever in the opinion of the war minister they were needed for national defense. The scheme considered by the department divides commercial vehicles into two classes—those capable of carrying a load of three tons at a speed of ten miles an hour and those capable of carrying half that weight at a speed of twelve miles an hour. The plan includes an initial payment of \$40 or \$50, to be followed by an annual payment of about \$70 to the owners of the trucks.

There are obvious reasons why the adoption of this plan should be much more desirable in England than in the United States. In the first place England is much more liable to foreign invasion than we are, with 3,000 miles of the Atlantic on one side and 5,000 miles of the Pacific on the other. Furthermore in England the distances are short and the roads highly developed, while with us the reverse is true in both cases. In the almost unthinkable event of serious foreign invasion of our territory, the railroads would have to be relied upon mainly for the work of transportation, owing to our great distances. But for local use undoubtedly the auto-truck would come conspicuously into play.

It is doubtful if our own war department has given much earnest consideration to any plan of subsidizing American motor vehicles, but it is undoubtedly watching with interest these developments abroad. The commercial auto-car in reality does not need any government subsidy in this country to insure its popularity. The

growth of production in this particular line has been very rapid. The United States census of 1905 showed only 822 of these vehicles in the whole country. Five years later the number had increased to 5,510; and the present number of commercial motor vehicles is estimated at close to 25,000; and it is a safe prophecy that this increase will go on indefinitely; for the superiority of the motor wagon over the horse-drawn vehicle is quite as obvious in times of peace as in times of war.

DO WE EXPORT BAD MANNERS?

THAT intrepid scaler of lofty mountain peaks, Miss Annie Peck, in an address which she made before the first Pan-American Trade Conference recently held in New York, had this to say among other interesting things:

"In regard to the trade between the United States and South America, this country needs several things. It needs ships, a knowledge of the Spanish language and good manners."

She went on further to observe that "the people of the United States are noted in South American countries for their bad manners. The commercial men who are sent there do not appreciate their Latin temperament. They do not inform themselves about the countries they visit. They look upon the great South American cities as small towns."

If this were the first time that this charge had ever been made it might be possible to pass it by with our customary American indifference, notwithstanding the fact that Miss Peck is an observing person who has spent many years in South America, devoted not only to mountain climbing, but to making the acquaintance of the people of the Southern Continent. But, in view of the fact that this same charge has been made many times before, it seems safe to assume that there must be at least a considerable proportion of truth in it.

Our South American trade is not what it ought to be. In the June issue of this publication we gave a brief table referring to rubber exports which showed that American rubber goods, including belting, hose and packing, boots and shoes, tires, and every other rubber product of our mills consumed by the people of Brazil during 1911, amounted only to \$150,000 in value. This is certainly a very meagre showing, considering the fact that the territory of Brazil is nearly nine-tenths that of the entire United States. Obvi-

ously, there is some reason why our exports to that republic and other South American countries have not yet assumed their proper proportions. It is not unlikely that indifferent manners have something to do with the smallness of these exports.

Any salesman, who has been in his position for more than a week, knows that in the domestic field, at least, it is necessary for him to display a certain amount of courtesy to succeed. When he goes into the office of a hoped-for customer he may detect many things that to his mind are open to criticism; the office may seem to lack system; it may be noticeably untidy; and the whole atmosphere of the place may not be at all to his liking, but he is hardly likely to introduce himself by saying, "Well, this certainly is a punk place; you ought to get a vacuum cleaner in here, and pump it out." If he should take that tack he would undoubtedly very soon leave the office, but not with a large order for goods. Courtesy may not always sell a bill of goods, but it invariably leaves a welcome for the salesman when he comes again. And if this is true at home there is every reason to think that it is equally true abroad.

New York may possess quite a number of distinct points of advantage over Rio Janeiro, and there is no harm in calling attention to this fact—when in New York. But when in Rio Janeiro the case is quite different, and, obviously, it is neither good breeding nor good business to boast there about American bigness to the disparagement of things Brazilian. It is right, of course, for the salesman to emphasize the superior quality of his wares, but if he wants to make friends—and customers—he will not lay too much stress on home superiority in other directions, even should such superiority exist. Good manners are great business builders everywhere; they will do more to open up a new territory than a steamship line or a thousand miles of railway.

A GLUT OF SECURITIES.

THE new financing that is now under way for the United States Rubber Co. and The B. F. Goodrich Co. gives a special interest to the general condition of the security market at the present time. There is no doubt, whatever, about the success of these new rubber offerings. The new issue of \$10,000,000 preferred stock by the United States Rubber Co. will hardly need to be underwritten, in view of the fact that these new shares are offered to the stockholders at par, while they are selling in the market at about \$12 above par. Nor will there be any difficulty in market-

ing the new shares of the enlarged B. F. Goodrich Co. in light of the exceptional profits made in the recent past by the Goodrich and Diamond companies, and the assurance of attractive dividends on the new stock.

But the general security market is not in the best possible shape. Its present condition is similar to that of three or four years ago when Mr. Morgan described the financial world as "suffering from undigested securities." During the first five months of the present year the new securities in the form of bonds, stocks and notes offered to the investor by the railroads and industrial corporations of the United States amounted to over \$1,200,000,000, and exceeded the offerings of the same period a year ago by a quarter of a billion. This enormous amount does not include State or municipal bonds issued during that time. Not only has the issue of securities greatly exceeded that of a year ago, but it comes at a time when the investing public is less than normally receptive. The summer of a Presidential campaign is never a time of brisk financial operations, and with the more than ordinary confusion in the present political outlook there is certainly no reason to believe that this summer will be an exception to the rule.

But the general financial situation will not interfere with the success of the rubber offerings, as they are exceptional in their character and stand on their own merits.

RUBBER COURSES IN LONDON.

A COURSE dealing with the chemistry and analysis of rubber has been established at the Northern Polytechnic Institute, Holloway, London, Mr. Frederick Kaye being in charge, with a total attendance of 38.

The students may be divided into three groups:

- a. Young men intending to go to Ceylon or Malaya, to be attached to plantations.
- b. Men engaged in the London rubber market, attached either to brokers' offices, or to those of plantation companies.
- c. Men engaged in the manufacture of rubber, or in London rubber warehouses.

The first part of the course was devoted to the study of crude rubber production, as well as to its analysis and the estimation of the commercial value of different rubbers. Attention is now being directed to methods of vulcanization, in addition to the physical and chemical investigation of vulcanized articles.

Next year the students will, it is expected, be able to devote themselves to more thorough analytical work, as the laboratory installation will then be more complete.

It is a distinct encouragement to the cause of rubber research to find the subject so successfully taken up in England.

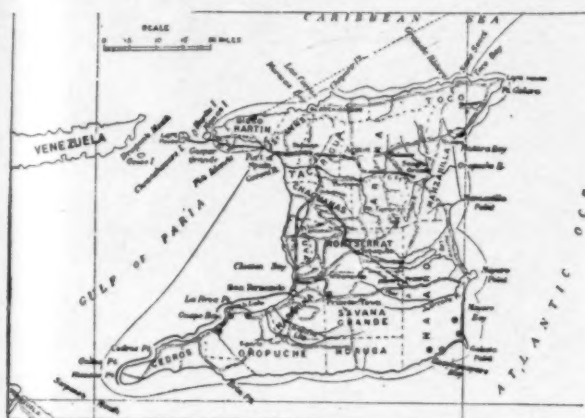
Trinidad and Its Rubber.

By the Editor of "The India Rubber World."

Physical Aspects of Trinidad—Conquest and Settlement—Production of Cocoa—Rubber Planting—Professor Carmody—The *Hevea Confusa*—Its Peculiarities and Probable Origin—The Danger of Hybridization.

TRINIDAD on the map, that is on any ordinary map, looks like a tiny square blot of ink close to the coast of Venezuela. It opens out, however, as one approaches it as a very sizable island. It is actually 55 miles long and 40 miles broad, and is one of the most picturesque of all the islands of the tropical Atlantic. Its forest-crowned mountains, flower-bedecked valleys and broad savannas, densely covered with tropical growths, its rushing brooks and rivers, land-locked harbor, and its heterogeneous mixture of races, as well as its

succession bodies of French agriculturists, importations of African slaves, Portuguese refugees, and in 1797 the actual capture of the island by the English. With British rule came the



MAP OF TRINIDAD.

romantic history, lend to it a charm intensified day by day as the visitor becomes better and better acquainted. Of course, it was discovered by Columbus, and named by him, and equally, of course the native Indians, the Arouacks and the Chaimas, disappeared. Columbus had done well if instead of imposing so pious a name he had allowed it to remain "Ireere"—Land of the



ENTRANCE TO GULF AT PARIA.

Humming Birds—as the natives called it. The island was owned by the Spanish until that picturesque adventurer Sir Walter Raleigh took it away from them—at least in part. Then came in



PROF. P. CARMODY, F. I. C., F. C. S.

East Indian coolie, and fully one-third of the population today is made up of that tractable, continent and peaceable type.

Trinidad is hot, with a mean temperature of about 78 degs. The island has excellent roads, some 400 miles being good for automobiles. In addition there are 1,100 miles of roads, trails and bridle paths that give access to all parts of the island. There are also about 90 miles of good railroad. It is therefore easy to visit the Pitch Lake, the oilfields, the mineral springs and enjoy some beautiful drives through wonderfully picturesque mountain valleys.

Trinidad is a great center for tropical products. Her most abundant crop is cocoa, of which she produces one-fourth of the world's annual supply; nor are her planters asleep concerning



CUSTOM HOUSE AND LANDING, TRINIDAD.

rubber. There are a few quite sizable plantings, and hundreds that run from half a dozen trees up to several thousand. The tree most interesting to them all is the *Hevea Brasiliensis*, but

there are plantings also of *Ceara*, *Funtumia*, *Castilloa* and *Ficus*.

Trinidad gets its wealth largely from agriculture, and it is therefore natural that it should have an unusually strong Department of Agriculture. In addition to the splendid botanical



TWELVE-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.

gardens situated close to Port of Spain, there are the St. Clair Experiment Station close at hand, and several outlying stations for various agricultural demonstrations. At the head of all of this is Professor Carmody, who, for more than 20 years, has successfully administered one of the most difficult positions in the tropical world. Governors came and went, budgets big and little were voted, his best men died or accepted positions in other fields, but he worked on, and brought success in cocoa, sugar, coconuts and oil. Today he is steadily advancing the planting of rubber. A warm-hearted, scholarly, witty Irishman—Trinidad owes him more than it can ever pay. It was under his direction that the late J. C. Carruthers instituted careful comparisons between the growth and yield of *Heveas* in the middle east and Trinidad and found them almost identical.

Those who have access to Demerara papers must have noted a difference of opinion between the head of the Department of Agriculture there and some Boston gentlemen regarding *Hevea* seed. It came about thus: The Boston men who are rubber manufacturers own two plantations, one in British Guiana and one in Trinidad. The latter contains fifty or sixty mature *Hevea* trees; the owners were gathering the seeds from them and planting their British Guiana lands. They were also selling *Hevea* seeds at a good price—\$5 per thousand I think it was—to planters in Trinidad, who were very glad to get them. Prof. Harrison in a communication to the planters in his own territory asserted that the seeds were not those of the *Hevea Brasiliensis*—at least some of them were not—and that such would produce an inferior tree. The result of this announcement was that the market for these particular seeds in Demerara ceased to exist,



THIRTY-YEAR-OLD *Hevea*, BOTANIC GARDEN, EMPEROR VALLEY.

and Trinidad planters, fearing partial failure, refused to pay more than \$2 per thousand for them. The Boston manufacturers were naturally much exercised, and delivered themselves of a

series of spicy epistles which were received with grim amusement by the sturdy head of the British Guiana Department of Agriculture, but with no change of front.

It was while this matter was still being discussed that I was in Trinidad.

As soon as possible I visited the plantation that was at the source of the trouble. The place was of exceedingly easy access, situated on the railroad that runs from Port of Spain to San Fernando, with a station on the property. A neighboring planter, with true tropical hospitality, induced us to stop off before reaching our journey's end and visit his bungalow for breakfast, and take a look at his own cocoa which was extensive,

and his rubber which was only a beginning. From there we drove to the Boston plantation. There certainly were two types of *Hevea* there, and when the differences were once seen they were pronounced. About half the trees were true *Hevea Brasiliensis*; the rest were apparently hybrids. The latter were of lusty growth, full-branched and densely leaved; the leaf was much broader toward the point than that of the *Brasiliensis*. The bark also was exceedingly thin, being hardly an eighth of an inch in thickness, and the latex produced a rubber that was very short and far inferior to Fine Pará.

After the latex had ceased flowing a yellow green resin oozed out and rolled down over the bark and there remained as sticky as the surface of fly-paper. Another difference in the tree was in the outer bark, the surface of which was broken by many minute spines, whereas the bark of the *Brasiliensis*, although nearly smooth, shows tiny vertical ridges. Still another was the dark reddish

color of the bark as compared with the silvery appearance of the other. The tree was withering differently from the *Brasiliensis* in that it had a full crown of bright green leaves, while the true trees were either entirely or partially denuded. The

seeds were larger, squarer and lighter in weight than those of the *Brasiliensis*, although showing practically the same mottled coloring.

Naturally after such an unusual experience, one sought the Botanical experts at St. Clair Experiment Station for further information. Professor Carmody, the head of the Department of Agriculture, very courteously opened every door of information for us and we were at once

shown a group of the same type of trees, some nine or ten years old, which were being regularly observed. There were also in the nursery seedlings of both the *Brasiliensis* and the Hybrid for the purpose of determining the differences of the two growths from the beginning. There had already been noted a suggestion of a difference when the leaf-shoots first appeared, the leaves of the *Brasiliensis* hanging almost vertically, while those of the

Hybrid stood out from the stem almost horizontally. Mr. Collens, of the St. Clair staff, who is specializing on *Hevea*, was of the opinion that there was a difference in the venation of the leaves, and was devoting time to that line of investigation. The original source of the seed from which the trees on the Boston plantation grew, was probably a fine thirty-year-old *Brasiliensis* of undoubted purity growing in the Botanic Gardens

at Port of Spain. About one hundred feet from it was an equally large and thrifty *Hevea Confusa*. The theory, therefore,

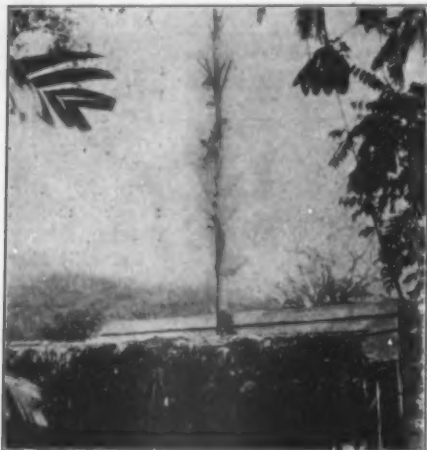


SIX-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.



Funtumia Elastica AT EXPERIMENT STATION, ST. CLAIR.

is that bees visiting the flowers of the *Confusa* conveyed pollen to those of the *Brasiliensis* and thus were responsible for the creation of this troublesome mongrel. That it was discovered while



Hevea Confusa 1912, CUT BACK, TRINIDAD.

planting is still young in the Western World is most fortunate; and the scientist who spoke plainly regarding the matter in the beginning should receive a vote of thanks from all *Hevea* planters.

How many planters there are that have a few, or perhaps many, of these trees mixed with *Hevea Brasiliensis* no

one at present knows. Certain of the plantations that I visited had a few that looked very much like them. The proper course, when they are identified, is to cut them out or at least to prevent them from blossoming. It, however, is hard for an owner

there are not hybrids in *Hevea* plantations outside of the West Indies. A botanist, who returned from the Middle East last winter, told me that the plantations there had quantities of them. The fact, however, that there has been no complaint on the part of planters in that part of the world, regarding the quantity or quality of the latex that their trees yield, would argue that there are very few, if any, there.

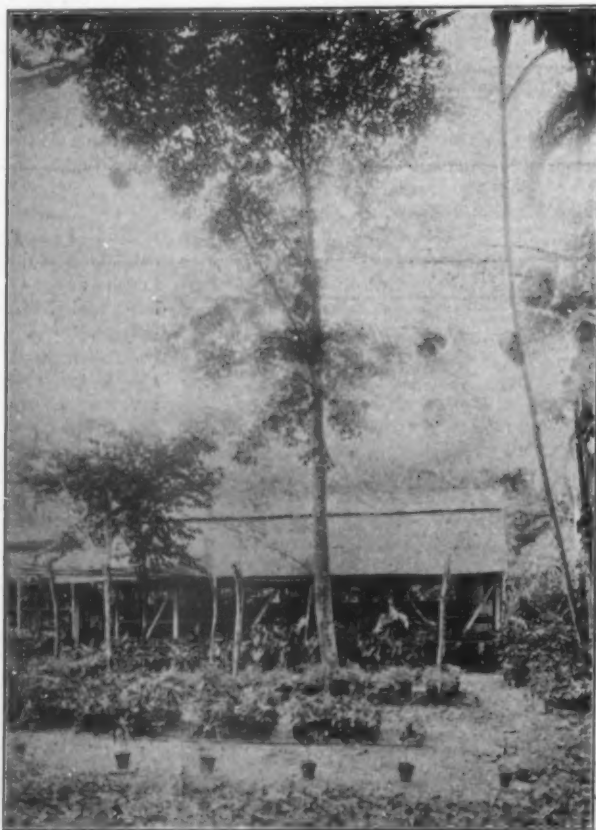
Again, if the *Confusa* crosses with the *Brasiliensis* why not the *Guianensis*, the *Randiana* and others? Here certainly is food for thought, and room for research.

In the meantime, to guard against future harm, the branches of the original *Confusa* have been lopped off, and any blossoms that it attempts to send out will be cut off ere they can open.

That rubber planters, not only in Trinidad but in the other islands and in the Guianas, were greatly troubled over the new *Hevea* was very natural. So highly did one value his *Hevea* that to prevent any possible crossing he planned to cut out both his *Castilloa* and *Manihot*. He was promptly assured that there was

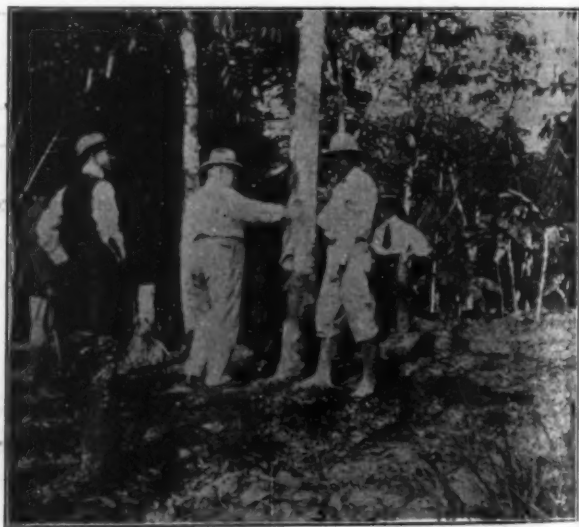


Hevea (Confusa TYPE), TRINIDAD.



Hevea Confusa 1910, TRINIDAD BOTANIC GARDENS.

to destroy a tree that, to his eye, is one of the thriftiest of his *Heveas*. Then, too, comes the question as to whether or not



Hevea (Confusa TYPE), TRINIDAD.

no danger of hybridization in either of these cases, and breathed freer.

Then came the inevitable query. "If the good and the bad *Hevea* cross, why not the good and the bad *Castilloas*? How do I know that my seeds from Mexico or British Honduras are not hybrids of the *Castilloa elastica* and the *Castilloa tunu*?" To this there was only one answer delivered in "purest *Castilloa*"—"Quien Sabe?" (To be continued.)

Rubber Investigation at Berlin.

WHILE largely devoted to the results of the investigations of Dr. Eduard Marckwald, during his recent visit to the German possessions in Africa, dealt with in the March and May issues of the INDIA RUBBER WORLD (pages 269 and 425), the annual report of the Berlin "Kautschuk Zentralstelle für die Kolonien" likewise deals with the work of his colleague, Dr. Fritz Frank, in that connection at their joint laboratory.

A number of important conclusions, founded upon the experimental work carried out during the year ending in April last, are recorded in detail. The institution was enlarged through the valuable addition of a distilling plant, adapted for practical demonstrations of the industrial utilization of German colonial rosin and other products; another new feature being the installation (now in progress) of a new experimental washing plant, constructed on "rational" principles. This plant will, it is claimed, be all the more appreciated, as the process used does not in any way injure the rubber treated; the washing of experimental quantities up to one ton having been provided for.

RUBBERS TESTED.

The rubber samples tested were 185 in number: *Manihot*, 77; *Kickxia*, 69; *Castilloa*, 9; *Ficus*, *Landolphia*, etc., 16; *Hevea*, 14.

MANIHOT.

Two samples lately received from Togo were found of particularly good quality, showing a marked improvement over that of samples received last year from the same plantation. This improvement is solely attributed to the rational manner in which the operation of the plantation has been conducted.

A number of samples of *Manihot* rubber from an East-African plantation were tested, which had all been coagulated by chloride of calcium. While it had not been found possible to remove the chloride of calcium, the unfavorable effects apprehended from the use of that coagulant were not noticed. Still caution is recommended in its employment.

With respect to washing, the report states that all the washed samples tested had materially suffered through that process; while those which had been subjected to a supplementary heating were completely spoiled. In fact no rubber washed in the colony could be regarded as a high-grade article.

During his recent visit to East Africa, Dr. Marckwald collected a number of samples of rubber extracted and prepared by the most varied methods, respecting which a comprehensive report is in preparation.

KICKXIA.

A number of samples of *Kickxia* from a West-African plantation, showed in the case of those prepared with *Purub*, marked appearances of decomposition. Hence, the necessity becomes more and more evident of not adopting general methods of coagulation, but of using a system adapted to the soil conditions and to the salts which are thus contained in the latex.

Coagulation with tannin has been partially adopted, yet the rubber thus obtained has an unattractive, opaque appearance; not realizing a good price.

A number of *Kickxia* samples were investigated, which had been prepared by the introduction of carbonic acid and the blowing in of air. The report says on this subject:

"It was demonstrated by testing, that the carbonic acid process is not practicable for *Kickxia* latex; an observation which was also confirmed through the investigations of Dr. Marckwald in East Africa, and must likewise be extended to *Manihot* latex."

CASTILLOA, FICUS, HEVEA, ETC.

Regarding above samples, special approval is expressed of *Hevea*, which, it is remarked, with favorable soil and the right preparation, will yield rubber of a thoroughly first-class character.

The *Castilloa* samples were relatively good, but, it is added, the cultivation of this variety is hardly to be recommended, on account of its requirements and its only yielding third-rate qualities.

RUBBER FROM BARK.

Among other points which have reached a technical solution, is the question of the extraction of rubber from the barks of trees; thus utilizing a sub-product. On the other hand, the trials made as to the profit attending the operation have not yet been conclusive. *Kickxia* bark yielded about 3.5 per cent. of wet rubber, while *Manihot* bark yielded about 2 per cent. of rubber. The report estimates, however, that the barks actually contain about double the above-named quantities of rubber.

The rubber thus obtained was of satisfactory quality and could be successfully vulcanized. The work was carried on in two directions:

1. Finding whether by working up large quantities at the same time, it was possible to reduce the consumption of power.
2. Finding whether the yields could be increased by working up fresh material.

As illustrating the principle involved in the last-named problem, it is remarked that in the working up of gutta percha leaves and bits of wood, relatively large quantities of gutta percha were extracted from fresh material, while there was little or no yield from dry material. Similar results attended experiments with parts of gutta percha plants from New Guinea. These investigations are being continued.

FERTILIZING.

Working from both ends of the line of investigation, the composition of the ashes of crude rubber has a special connection with the quality. This composition is directly dependent upon the soil of the plantations. As the report remarks, lime and magnesia salts, as well as phosphates, exercise a different, but in all cases important, effect upon the rubber to be obtained. Experiments in East Africa personally conducted by Dr. Marckwald, and since his return, followed up by Professor Zimmermann, will be fully dealt with in the next quarterly report of the "Zentralstelle."

One important feature of these new investigations is based on the fact that the absence of certain salts in the soil has been found to lead to the production of inferior qualities of rubber, notably in the case of *Hevea*. As to how far it is possible to supply these salts artificially by fertilization, is a subject on which the "Zentralstelle" is now working.

VISCOSITY OF RUBBER.

Prominent among the subjects of physical tests, were those as to the viscosity of rubber; the necessary apparatus having been to a great extent reconstructed. In this connection, it is remarked that viscosity gives extremely valuable indications as to the quality of rubber and as to the durability of the articles which may be made from it. Yet it is added, it does not give any values of general application, but only of a comparative nature.

OIL FROM KICKXIA SEEDS.

Seeing the preponderating importance of *Kickxia* in Kamerun, the question of the extraction of oil from its seeds is of considerable importance to German rubber-growing interests. The opinion is expressed that the profitable utilization of the seed depends upon the removal of the bitterness noticeable in the oil-cakes, in order to be able to use them as feed. It will be necessary in the first place to elucidate the chemistry of the bitter substance present. If this is not successful, then the whole of the oil must be obtained by pressing under heat, or otherwise extracted and used for technical purposes.

Hitherto *Manihot* seeds only yielded 8 per cent. of oil against 26 per cent. in the case of *Kickxia*. The oil from the seeds of both trees seems to be of good quality and possibly serviceable as edible oil. For the definite solution of the above important questions a good deal of work is still necessary. The breaking of the hard *Manihot* fruit and the removal of the ligneous husk from the seed have been effected in a technically satisfactory manner.

GUTTA PERCHA.

A close investigation of the subject of New Guinea gutta percha is approaching completion; dealing particularly with the latices of the various trees yielding same, as well as with the components present which do not contain that substance.

Following up previous reports of the institution, it is recorded that the question of the improvement by treatment of inferior grades of gutta-percha, has now been satisfactorily solved. Provided that no considerable reduction takes place in the prices of the higher grades, it is claimed that this process will show a good profit, where large quantities of the raw material are being worked up.

SYNTHETIC RUBBER.

With reference to the numerous inquiries received during the year as to the prospective importance of synthetic rubber the report expresses the opinion that it will not have an immediate effect upon the development of prices. As it says:

"For the one method of extraction the original material seems to be too dear, while for the other it is not available in sufficient quantity. For the plantation cultivation of the German colonies, the only danger now, as in the past, lies in the rapid development of the plantations of the East."

Such are a few of the salient points of this comprehensive 10,000 word report; the chief interest of which is the indication of further investigations along the progressive lines which mark the operations of the "Zentralstelle," under the skilled and enterprising direction of Dr. Marckwald and Dr. Frank, as a section of their laboratory.

THE HENRIQUES CHEMICAL LABORATORY, BERLIN.

A REMARKABLE instance of continuity in methods of analytical research is afforded by the history of the "Chemical Laboratory for Commerce and Industry," founded July, 1890, in Berlin, by the late Dr. Robert Henriques; a name familiar to the last generation of rubber scientists. From the inception of his enterprise Dr. Henriques devoted attention to the establishment of purely scientific bases for analytical work connected with the rubber industry. It is true that the investigations of Wallach, Gladstone and Hibbert, Tilden and others had more or less fully covered the ground, but the utilization of their experiences for strictly analytical purposes, was hardly practicable.

Another of his special subjects was the theory of vulcanization; in addition to the chemistry of the manufacture of rubber substitutes.

Towards the latter part of the year 1900 Dr. Henriques fell ill, dying two years later. On June 15, 1901, Dr. Edward Marckwald took over the laboratory; Dr. Fritz Frank being associated with him from April 1, 1902. Above are portraits of the two last named chemists, who are still at the head of the establishment; the memory of Dr. Henriques being perpetuated in its title:—"Chemical Laboratory for Commerce and Industry—Dr. Robert Henriques' Successors—Proprietors, Dr. Edward Marckwald and Dr. Fritz Frank." The scientific bases established by Dr. Henriques have been developed by his successors.

Early in 1904 Dr. Frank became sworn expert for rubber and allied branches, to the Berlin Provincial Tribunals I, II and III; being appointed in 1907 to similar positions with the Berlin and Potsdam Chambers of Commerce.

A new department was added in April, 1910, in the form of the "Central Rubber Bureau for the Colonies," the last report of which is dealt with in another column. This section was specially intended for the treatment of all questions affecting



DR. EDUARD MARCKWALD.

plantations; as well as the cultivation, extraction and preparation of crude rubber.

The laboratory is now divided into three sections:

- A. Investigations, reports, chemical and technical consultations; in all matters affecting the extraction of rubber, crude rubber, working of rubber, and rubber goods.
- B. Investigation and valuation of coal, turf, asphalt, mineral oil and tar; as well as the industrial products of same.
- C. Central Rubber Bureau for the Colonies.



DR. FRITZ FRANK.

When taking up its quarters in its present location, the laboratory was supplemented by an experimental plant, which has permitted the carrying out of experiments relating to various manufacturing processes.

Further enlargement of the establishment is now recognized as likely to be an unavoidable necessity in the immediate future.

The Manaus Rubber Congress of 1910.

TIME flies apace and the two years since the Manaus Congress of 1910 have passed rapidly. Hence, though apparently an episode of the past, the Congress in question, which lasted from February 22 to 27, 1910, still has a living interest for the rubber industry.

In the issue of THE INDIA RUBBER WORLD for April 1, 1910 (pages 233-240), the salient features of the Congress were described by the editor, who had attended on that occasion. Its permanent value as a link in the world's rubber history, largely consists, however, in the valuable contributions to technical literature afforded by the prize essays and other papers read on the occasion. The intention announced at the time of reproducing them has now been fulfilled by the publication of the official proceedings, compiled by Senhor Bertino Miranda, Secretary General of the Congress.* This volume, besides the text of the above-named papers, contains a full report of the proceedings of the Congress, outlined at the time in these pages.

As expressing the views of the Congress upon the questions before it, special interest attaches to the three groups of "conclusions" or resolutions adopted, dealing respectively with the commercial, extractive and agricultural features of the question, and formulated by the three sections in charge of those subjects. In the issue of THE INDIA RUBBER WORLD of April, 1910 (page 237), the second of these groups is reproduced, in course of which approval is expressed of Mr. Henry C. Pearson's advice to rubber planters not to abandon the smoking process. Some of these resolutions have been since more or less fully carried out, while all of them are still of interest to the rubber industry at large.

One of the most interesting features of the Congress was the rubber exposition, the record of prizes awarded on that occasion forming an appropriate conclusion to the official report. The proceedings, as well as the exposition, were fully reported at the time in THE INDIA RUBBER WORLD, but the able work of Senhor Miranda in compiling such an interesting record of the Congress, and for appreciation and recognition. The names of the competitors and the subjects of their essays are quoted below.

On the eve of another exposition, it is pleasant to recall the memories, social as well as technical, of the 1910 Manaus Congress. Let us hope that many of those who attended on that occasion, may be seen in New York in September.

PRIZE ESSAYS.

- I. How should the Amazonian soil be peopled?

COMPETITORS.

Dr. Augusto Ximeno de Villeroy. Prize.

Dr. Benjamin de Araujo Lima. Honorable mention.

- II. Can agriculture be successfully attempted in the valley of Amazonas?

In the affirmative case, what are the regions most adapted for that purpose, without injury, and even as an aid to the extractive industries?

COMPETITORS.

Carlos Eugenio Chauvin. Prize.

Dr. Esmeralde Coelho. Honorable mention.

- III. What are the advantages of planting rubber in the Amazonian regions, and where should this planting be carried out? Perhaps these advantages better assure the extractive richness of the rubber, rendering it more solid and connecting its extractive forces more closely with the soil?

Of the processes adopted for the extraction and coagu-

lation of the latex of the *Hevea Brasiliensis*, which should be preferred?

COMPETITORS.

H. C. Pearson. $\frac{1}{2}$ prize.

Carlos E. Chauvin. $\frac{1}{2}$ prize.

Dr. C. Cerqueira Pinto. Honorable mention.

(Mr. Pearson's essay was reproduced in THE INDIA RUBBER WORLD of October 1, 1911, page 12.)

- IV. Means of facilitating and developing mercantile navigation in the waters of Amazonas.

COMPETITOR.

James Williams. Honorable mention.

VARIOUS THESES AND ESSAYS.

Dr. Augusto Ximeno Villeroy.

- I. Same subject as prize essay IV.

- II. " " " " " II.

- III. " " " " " III.

(Dr. Villeroy, it will be recalled, had been awarded a prize in competition I, but further dealt with the questions propounded for the other competitions.)

Dr. Jacques Huber.

Methods of Extraction of the Latex of *Hevea Brasiliensis*.

J. M. Fonseca Lobo.

The Soil of the Amazonian Region.

J. A. Mendes.

The Production of Caucho.

M. Lamy Torrilhon.

President of the Syndical Chamber of Rubber Manufacturers, Paris.

Rubber and the Future of Brazil.

Emilio Castre.

"El Jebe."

Dr. Passos de Miranda Filho.

Means of Developing the Valley of Amazonas.

RUBBER TREES OR PINES.

Dealing with the general question of synthetic rubber, in the "Commercio do Amazonas" of Manaus, Senhor Amando Diniz urges that it would be preferable to plant *Hevea* and extract the latex after six years, thus getting directly the best rubber in the world, instead of planting pine trees. The latter, he states, only produces rosin after twenty-five years in sufficient quantity for distillation into turpentine. Then the isoprene has to be extracted by costly methods; the final result being only an artificial product.

AUTOMOBILE FIRE-FIGHTING APPARATUS AT BAHIA.

The city of Bahia recently called for bids for two automobile fire engines, together with a like number of ladder trucks, hose carriers and ambulances. Bahia being prominent in various movements connected with South American development, this step is of interest.

The rubber producing States of Brazil will be represented at the New York Rubber Exposition to be held the last of next September in the Grand Central Palace. The governor of Pará has issued orders that the rubber products that have been permanently on exhibition in Paris, together with additional exhibits prepared especially for the occasion, shall be shipped to New York.

**Anuaes do Congresso Commercial, Industrial e Agricola de Mandos, 1910.* (Proceedings of the Commercial, Industrial and Agricultural Congress), held at Manaus, February 22 to 27, 1910. (Manaus, 1911. 430 pp. Paper.)

Progress in Artificial Rubber Production.

GERMAN scientists have expressed the hope that success in the production of artificial rubber will be attained more quickly than was the case with artificial indigo. In dealing with the subject in "Kunststoffe," Herr Rassfeld (certified engineer) remarks that while it is as yet too early to cast a very favorable horoscope for artificial rubber, the numerous patents applied for and granted since the beginning of 1911, and the most recent literature on the subject illustrate how energetically work is being carried on; further showing that from a technical point of view we are a good way nearer the solution of the problem. Those who a year ago regarded competition between artificial and natural rubber as excluded from consideration, are now forced to admit that as the work now stands, artificial rubber if not (as was the case with indigo) conquering the world, will be in a position to exercise influence towards a reduction of the price of rubber.

DEPOLYMERIZATION AND POLYMERIZATION.

While Tilden and Harries had demonstrated with regard to natural rubber, that the hydro-carbon molecule of rubber is decomposed by depolymerization into isoprene, it would seem that at about the same time methods were discovered by which the polymerization of the isoprene molecule into the rubber molecule was effected. For this purpose several new methods have been discovered during the past year. In this way the question of polymerization offers less difficulty, the main question still being: Will it be possible to produce at a sufficiently low price the isoprene and kindred basic substances necessary for polymerization? The determination and recognition of the fact that these kindred (or in chemical terms homologous) substances are transformed by polymerization into substances homologous to rubber, may be regarded as discoveries of the highest importance. Herr Rassfeld adds that, without being too optimistic, we may regard these homologous substances with particularly hopeful anticipations. It is regarded as possible that these "rubber homologues" will be found to possess qualities rendering artificial rubber specially valuable.

PRODUCTION OF ISOPRENE AND KINDRED SUBSTANCES.

The production of isoprene and kindred substances is principally effected in two forms:

1. The reduction into isoprene of natural products containing the isoprene molecule.
2. The building up of the isoprene molecule from the start, by so transforming easily accessible products, that isoprene or its homologous substances may be obtained by division.

Hitherto the technical extraction of isoprene from natural products (such as turpentine) did not promise well, on account of the unsatisfactory yield, which Tilden had estimated at a maximum of 10 per cent.* Efforts have therefore naturally been directed to finding methods for increasing the yield. While formerly the vapors of oil of turpentine were conducted through pipes at a temperature of about 600° C. (1,112° F.) for the purpose of separating the hydro-carbon molecule from the turpentine, much better yields are now obtained by working at sub-pressure instead of ordinary pressure. Silberrad, it is added, conducts the oil of turpentine vapors at sub-pressure, through pipes heated to 450°-750° C. (842°-1,382° F.) the yield being 25-50 per cent. instead of 2-3 per cent., as by the old method, the low yield of which was due to the re-polymerization of the isoprene.

Still better results are claimed for two similar, yet independent, processes of Staudinger and Klewer, and of Harries. These inventors effect the decomposition of the oil of turpentine vapors—not by conducting them through heated pipes, but by

means of metal wires, brought to a red heat by an electric current. Herr Rassfeld calls special attention to the fact that the yield obtained by this method is 60 per cent. or more. While Harries works with atmospheric pressure, the other experts named likewise use the vacuum system.

In the decomposition of turpentine vapors into isoprene, as one part of turpentine gives two parts of isoprene an increase of volume takes place. In other words, the pressure is increased.

On the other hand the temperature depends upon the pressure. If the latter is artificially reduced (by working at sub-pressure) the vapors are rarefied and the temperature of decomposition sinks. As the polymerization of isoprene depends upon the temperature, a higher yield is in this manner produced; owing to the reduced formation of antagonistic agents.

Heinemann starts with the same object in view, of attaining decomposition at the lowest possible temperature. Only he uses the catalytic properties of finely divided copper or silver. Therefore, either he conducts the oil of turpentine vapors over these metals, finely divided, or he allows the decomposition to take place in copper or silver vessels. This inventor claims that decomposition is attained at 450° to 480° C. (842° to 896° F.), and that the yield amounts to as much as 50 per cent.

SUBSTITUTES FOR OIL OF TURPENTINE.

In both of the two forms already referred to, for the production of isoprene, progress has been recorded.

As oil of turpentine is relatively high in price, efforts have been made to use for obtaining isoprene the resinous residues of the extraction of that oil. It is added that the different copals (such as Manila and Borneo copals), and above all the resins which result from the purification of rubber, are suitable for the extraction of isoprene, by vacuum distillation at 250°-450° C. (482°-842° F.).

BUILDING UP ISOPRENE.

Particularly as to the second form of isoprene production (that of building up the isoprene molecule) has progress been made during the past year. The most important point is that up-building methods have been discovered, which are not so complicated as to involve their technical impracticability; in fact, methods which are not interesting solely from a scientific point of view.

Specially prominent in this connection are the Elberfeld Farben Fabriken, formerly F. Bayer & Co., whose chemists have discovered a number of processes leading more or less easily to the desired end. Thus Dr. F. Hoffman and his colleagues have been using as a basic material para-cresole, obtained from coal-tar and wood-tar, and which is derived from toluol, in the same way as phenole (carbolic acid) is derived from benzole.

In the search for shorter methods, it has been found possible to obtain isoprene derivative from zyklo-hexanole. It is remarked that coal-tar, which in the fullest sense of the word is a gold mine, will apparently present us with artificial rubber. Further basic materials for isoprene are furnished by wood spirit and pyroxylic acid, in the form of formaldehyde and acetone. Fusel oils, contained in crude alcohol, are another source of isoprene.

Finally Herr Rassfeld remarks: "Even if artificial rubber will never supersede the natural article, we are justified in hoping that the German chemical industry will succeed in placing upon the market, a rubber which will, on the one hand, help to regulate prices, and on the other will render our rubber manufacturing industry more independent of foreign supplies."

This contribution to the technical literature regarding artificial rubber will doubtless be found of interest.

*See INDIA RUBBER WORLD, September 1, 1911, p. 463.

The New York Rubber Exposition.

PRESIDENT TAFT TO ACT AS PATRON.

WILLIAM H. TAFT, President of the United States, has consented to be the "Patron" of the International Rubber Exposition to be held in New York in September of this year. It is more than probable also that he will be present to open the exercises on September 23. Mr. A. Staines Manders has received the following letter from him:

THE WHITE HOUSE, WASHINGTON.

18th June, 1912.

MY DEAR SIR:

I have your letter of the 7th June and shall be glad to accept your invitation to act as Patron of the third International Rubber Exposition to be held in New York next September.

With thanks for the compliment implied in the request, I am,

Sincerely yours,

(Signed) WM. H. TAFT.

The Exposition will be divided into three sections—first floor, manufacturers of rubber goods and machinery; second floor, the allied trades and sundries; and the third floor, crude rubber (in which section over twenty governments will exhibit as well as many of the plantation companies), and crude rubber importers and dealers of this country. The Manufacturers' Section has the largest area of space.

An idea of the magnitude of some of the exhibits may be gained from the fact that one single space occupies over 5,000 square feet of space; another 3,500; another nearly 3,000, and many over 1,000 square feet. Only three spaces of the minimum size, viz., 10 x 10 have been taken; all the others are much larger.

No small retail selling stands—which are so often seen at exhibitions—will be permitted; as Mr. Manders states that the Exhibition will be a high-class trade display, to bring together all who are connected with the industry as buyers or sellers, or as manufacturers and producers.

An "Exhibition Rubber Club" will be fitted up, but not open to the public. It is being arranged for the use of exhibitors who wish to conduct their correspondence or talk business with customers away from their booths; it will also be available for members of the committee and delegates from other countries. A rest room for ladies will also be provided. There will be a small cafe on each of the first two floors, and a restaurant in the building; also telephone, telegraph and postal facilities.

Rubber flooring and tiling will be important features of the Exhibition and several manufacturers are making special mats to lay down in the front main entrance and avenues of the Exhibition. The Mechanical Rubber manufacturers are taking a prominent part; about seven of the leading firms have booked space, one for the purpose of arranging a specially large working exhibit. Exhibits of general rubber lines and sundries will be well to the fore.

Rubber menus and other novelties are being prepared by manufacturers for use at the Press Dinner and at several government functions that are to be held during the Exhibition.

One of the leading rubber concerns will show by a series of moving pictures, the process of manufacture of rubber goods, and the government of the Federated Malay States will take the visitors for a tour through a rubber plantation, showing the whole course of the production and preparation of the rubber for shipment.

The delegates to the conference of manufacturers, chemists, producers, and those interested in the industry generally, will meet on Tuesday, September 24, and continue these meetings

for one week. Important papers will be read by visitors from the various countries of the world. Mr. Henry C. Pearson will preside.

The Government of Ceylon has appointed Mr. F. Crosbie Roles, Managing Editor of the "Times of Ceylon," to be its commissioner in New York; the Government of the Federated Malay States is sending Mr. Leonard Wray I. S. O.; Dr. Dahne will come on behalf of the Government of Brazil. The Planters' Association of British Malaya has arranged with Mr. Cyril E. S. Baxendale to be present as its representative. Mr. W. Shakespeare, a well-known merchant of Ceylon who is interested in rubber plantations, will also visit the Exhibition.

Numerous makers of machinery have secured large spaces and will all show machinery in motion to illustrate the treatment of the rubber by different machines.

Seventy Estates will exhibit rubber in the Federated Malay States Government Section, to the total weight of about twelve tons. The erection of some of the large government stands is already being proceeded with, and the designs that have been executed show that they will be of a most elaborate character. The reclaimed rubber and kindred concerns will make a fine display. Some of the firms have booked large spaces; one particularly, which intends to arrange a working exhibit.

This is not to be an annual exhibition. It will doubtless be four years at least before a similar one is held in this country.

The Motor and Accessory Manufacturers' Association has sent the following letter to the management:

THE MOTOR AND ACCESSORY MANUFACTURERS,

17 West 42nd street,

New York, N. Y., June 11, 1912.

Office of Manager,
WILLIAM M. SWEET.

MR. A. STAINES MANDERS, Organizing Manager,
New Grand Central Palace,
New York, N. Y.

DEAR SIR:

Your favors of June 4th and 10th, respectively, requesting further decision on the subject of application of this association's rules and regulations to your proposed Exposition, were duly received. Replying would advise, that inasmuch as this association has not exercised jurisdiction, any exhibit by a member of this association necessarily would be violating no rules or regulations of this association. This decision is rendered on the understanding that automobiles will not be exhibited.

Respectfully yours,

THE MOTOR AND ACCESSORY MANUFACTURERS,
(Signed) William M. Sweet,

The National Association of Automobile Manufacturers also state that it would not be against their "rules for members" to exhibit if they wished.

Exhibitors have the right to print and issue their own invitation tickets to their friends and customers, and a specially low admission has been arranged for *bona fide* employees, or work hands in rubber mills and factories of the allied trades.

The following notice will be printed on all tickets so that competitors of exhibitors, who are not represented, will not secure an unfair advantage:

"No person other than an Exhibitor, or an Exhibitor's Representative is allowed to canvass visitors or exhibitors for orders, or for any purpose whatsoever, or to take sketches or photographs of the exhibits. Any transgression of this rule renders such person liable to immediate expulsion from the building, and this ticket is issued and accepted on this condition."

The manufacturers of chemicals, and the allied trades generally are already well represented, having booked up space early.

PRIZES TO BE AWARDED AT THE EXPOSITION.

The Rubber Growers' Association, London, offer their gold, silver and bronze medals (each with diploma) for the three samples of Plantation Rubber (irrespective of the method of preparation or country of origin), specially entered for the competition, that may be placed highest by the jury.

The conditions are as follows:

- 1.—The Competition is open without entrance fee to anyone engaged in any part of the world in the growth of rubber upon plantations, and entries may be made either by the owners of any such plantation, whether individuals or companies, or by the executive superintendent or manager.
- 2.—Competitors may send in more than one sample, but must forward a separate entry form for each exhibit.
- 3.—No sample will be accepted for the Competition unless it has a minimum net weight of 112 lb. packed into one case.
- 4.—No brand or identifying mark of any kind must appear on the actual rubber, but the duplicate entry form (see Rule 10), fully filled up as prescribed, must be enclosed in the case. Competitors may attach to this cards giving supplementary information as to the place and method of production, the postal address of the estate, the office of the owners, etc., for the benefit of manufacturers or possible buyers. Portions of each sample received within the prescribed time will be placed on show in the Raw Rubber Section of the Exhibition, adjoining the general exhibits of producing countries, and all the foregoing information will be attached to the samples by the Exhibition staff after the awards have been made.
- 5.—Competitors will be required to certify on the Form of Entry accompanying the exhibit the genuineness of any sample sent in for competition and to have their forms countersigned by an official of their local association, but in the case of estates unconnected with any association, the signature of the nearest British Consul or other recognized local official will be accepted.
- 6.—The awards will be made immediately on the opening of the Exposition, without scientific or chemical tests and merely on the basis of commercial value, by a jury consisting of not fewer than seven members selected from the raw rubber experts of New York.
- 7.—The decision of the Jury shall be final in all matters connected with the competition.
- 8.—At the close of the Exposition all samples sent in will be sold by the Exposition authorities, if possible by auction, to the regular consumers of such rubber, and the net proceeds remitted to the competitors.
- 9.—All samples must be delivered *carriage paid* to the building between 10th and 16th September, addressed:
A. STAINES MANDERS,
Manager, Rubber Exposition,
Merchants' and Manufacturers' Exchange,
Grand Central Palace,
46th and 47th streets, Lexington avenue,
New York City,
and marked "RAW RUBBER," with country of origin, in bold letters. (Note.—This is necessary, New York being in a protective country; all raw rubber is admitted duty free, but if marked it will facilitate Customs entry). The samples will be unpacked, displayed and covered by Fire Insurance, free of charge to competitors.
- 10.—Forms of Entry (in duplicate) may be obtained from the Secretary, Rubber Growers' Association, 1 Oxford Court, Cannon street, London, E. C., and from Rubber Planters' Associations in all parts of the world, and one copy thereof must be returned not later than the 10th August, 1912, to A. Staines Manders, Manager, International Rubber and Allied Trades Exposition, Grand Central Palace, 46th and 47th streets, Lexington avenue, New York City. All letters bearing the post mark of the 1st August, 1912, will be accepted as entries.

NOTE.—Consular Invoices upon the forms supplied by the Government of the United States of America must be prepared for each shipment, and legalized by declaration before the Consul at the shipping port. Upon completion they should be forwarded with the shipping documents to Mr. A. Staines Manders, at the address stated above, who will clear through Customs.

Mr. A. W. Stedman has been appointed commissioner for the Commercial Association of Manáos, Brazil, and also as a commissioner for Matto Grose. Brazil will have about 5,000 square feet of space at the exhibition.

NOTES OF THE RUBBER CONFERENCE.

Mr. Cyril E. S. Baxendale has been appointed by the planters of the Federated Malay States, and will read a paper in connection with the rubber industry of that country.

Dr. Frederic Dannerth has accepted the position of honorary secretary of the Conference.

F. A. Stockdale, Esq., honorary secretary of the Permanent Exhibition Committee of British Guiana, will have a paper read in reference to the rubber industry in British Guiana.

T. W. Miller, Esq., of the Faultless Rubber Co., will read a paper on dipped rubber goods.

Francis E. Lloyd, Esq., recently resigned from the Alabama Polytechnic Institute to take the position of MacDonald, professor of Botany, McGill University, Montreal, Canada, will read a paper upon "Some Effects of Acclimatization Upon Guayule."

Dr. L. E. Weber, of Boston, will read a paper on some important subjects in connection with rubber chemistry.

As invitations have only recently been issued, it is impossible to say the exact number of papers that will be read and their subjects, but in our next issue we hope to be able to give a full list.

It is expected that about 300 delegates from different countries will visit New York to take part in the Exhibition and Conference.

Dr. D. G. Boeor, secretary of the Hungarian Association of Chemical Industry, will be in New York, and has indicated his intention of taking part in the Conference.

Dr. Huber, of Pará, the great rubber expert of Brazil, has intimated his intention of being present on behalf of the government and will attend the Conference.

ADVERTISING SOLICITORS UNAUTHORIZED.

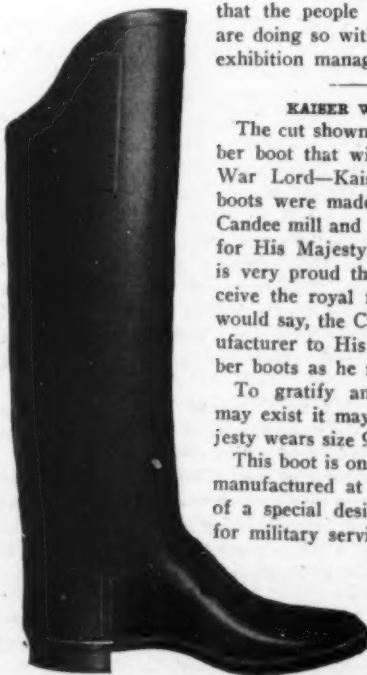
We have been asked to state that the management of the New York Rubber Exposition has not authorized any firm or person to solicit orders for advertisements or souvenirs of any description, and while a handbook of the Exposition will be published, no advertisements will be solicited for it. Manufacturers will therefore understand that the people who are troubling them are doing so without the authority of the exhibition management.

KAISER WILHELM'S BOOTS.

The cut shown herewith pictures a rubber boot that will be worn by the great War Lord—Kaiser Wilhelm II. These boots were made on special trees at the Candee mill and are now on the high seas for His Majesty. The Candee Company is very proud that its efficiency is to receive the royal favor, or as the English would say, the Candee mill is now "Manufacturer to His Majesty," for such rubber boots as he requires.

To gratify any public curiosity that may exist it may be stated that His Majesty wears size 9.

This boot is one of the handsomest ever manufactured at the Candee mill and is of a special design that company makes for military service in Europe.



THE RUBBER CLUB OF AMERICA.

THE following are the officers and committees of the Rubber Club of America for the current year:

Frederick C. Hood, *President*.
George B. Hodgman, *Vice-Pres.*
J. Frank Dunbar, *Treas.*
Harold P. Fuller, *Secy.*
John P. Lyons, *Asst. Secy.*

HONORARY VICE-PRESIDENTS.

L. Dewart Apsley
Augustus O. Bourn
John H. Flint
George H. Hood
Alexander M. Paul
Henry C. Pearson
Arthur W. Stedman

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George H. Hood, Hamilton, Massachusetts.
A. M. Paul, Davidson Rubber Co., Charlestown.
Henry C. Pearson, INDIA RUBBER WORLD, New York.
A. W. Stedman, New York Commercial Co., New York.
H. E. Sawyer, United States Rubber Co., New York.
E. S. Williams, United States Rubber Co., New York.
H. E. Raymond, B. F. Goodrich Co., Akron.
F. H. Appleton, F. H. Appleton & Son, Boston.
F. H. Jones, Tyer Rubber Co., Andover.
G. E. Hall, Boston Woven Hose and Rubber Co., Cambridgeport.
A. L. Comstock, American Rubber Co., Cambridgeport.
E. E. Wadbrook, Arnold & Zeiss, New York.
H. S. Firestone, Firestone Tire and Rubber Co., Akron, Ohio.

EXECUTIVE COMMITTEE.

G. B. Hodgman, Hodgman Rubber Co., New York (Chairman).
H. C. Pearson INDIA RUBBER WORLD, New York.
H. E. Sawyer, United States Rubber Co., New York.
E. E. Wadbrook, Arnold & Zeiss, New York.
F. H. Jones, Tyer Rubber Co., Andover, Massachusetts.

NOMINATING COMMITTEE.

L. D. Apsley, Apsley Rubber Co., Hudson (Chairman).
H. E. Sawyer, United States Rubber Co., New York.
C. J. Bailey, C. J. Bailey Co., Boston.
W. H. Gleason, Revere Rubber Co., Chelsea.
E. E. Wadbrook, Arnold & Zeiss, New York (Secretary).

AUDITING COMMITTEE.

J. E. Stone, Hood Rubber Co., Boston (Chairman).
E. F. Dewing, Boston Rubber Shoe Co., Boston.

ENTERTAINMENT COMMITTEE.

W. L. Proctor, Enterprise Rubber Co., Boston (Chairman).
J. H. Learned, Revere Rubber Co., Boston.
A. T. Baldwin, Walpole Rubber Co., Walpole, Massachusetts.
I. F. Burnham, Stoughton Rubber Co., Boston.
E. H. Kidder, United States Tire Co., Boston.

SPORTS COMMITTEE.

W. G. Page, Hood Rubber Co., Boston (Chairman).
E. L. Phipps, United States Rubber Co., Boston.
W. L. Pitcher, Easthampton Rubber Thread Co., Easthampton.
R. L. Rice, Hood Rubber Co., Boston.
W. J. Kelly, Arnold & Zeiss, New York.

DINNER COMMITTEE.

C. A. Coe, United States Rubber Co., Boston (Chairman).
W. E. Barker, United States Rubber Co., New York.
R. L. Rice, Hood Rubber Co., Boston.
R. B. Baird, Rubber Trading Co., New York.
Griswold Stowe, Stowe & Woodward, Campello.

THE RUBBER SECTION OF THE AMERICAN CHEMICAL SOCIETY.

At a meeting held on June 5, the following committees were appointed:

GENERAL RUBBER CONSIDERATION COMMITTEE.

D. A. Cutler, Rubber Goods Manufacturing Co., chairman,
H. von der Linde, Continental Rubber Co.,
W. E. Piper, Boston Rubber Shoe Co.,
G. T. Cottle, New York Insulated Wire Co.,
A. D. Hopkins, Boston Woven Hose and Rubber Co.,
D. Spence, Diamond Rubber Co.,
D. Whipple, 114 Liberty street, New York City,
C. R. Boggs, The Simplex Electrical Co.,
H. Fay, Massachusetts Institute of Technology,
W. C. Geer, The B. F. Goodrich Co.

ANALYTICAL COMMITTEE.

Dorris Whipple, 114 Liberty street, New York City, chairman,
J. W. Schade, The B. F. Goodrich Co.,
P. H. Walker, Bureau of Chemistry, Washington, District of Columbia,
J. B. Tuttle, Department of Commerce and Labor, Washington, District of Columbia,
G. T. Cottle, New York Insulated Wire Co.,
George Oenslager, Diamond Rubber Co.,
W. A. Ducca, India Rubber Co.

COMMITTEE ON SPECIFICATIONS.

C. R. Boggs, The Simplex Electrical Co., chairman,
G. H. Savage, American Steel & Wire Co.,
H. Fay, Massachusetts Institute of Technology.
W. C. Geer, The B. F. Goodrich Co.,
H. B. Rodman, Pennsylvania Railroad,
D. A. Cutler, Rubber Goods Manufacturing Co.

It was also decided that the General Rubber Consideration Committee would ask all the members of the Section to submit the best method for analyzing rubber goods that is known to them today; that the committee would then select the best method and submit this to the American Chemical Society, asking the society to publish it as the best method known at the present time. The Analytical Committee will in the meantime and in the future attempt, by research and such other methods as it may select, to revise this adopted method from time to time, as may seem best for the interests of the Rubber Section; the object being that any chemists in the country who may have occasion to analyze rubber goods, may have an authorized standard method to proceed with their work.

When this has been accomplished there should not be, as appears to be today, such a variance in the results reported from different chemists who analyze vulcanized rubber products. The Section hopes to have this accomplished so that it may be announced at the coming International Conference in September.

PACIFIC COAST RUBBER MANUFACTURERS' ASSOCIATION.

The following men were recently elected officers of the Pacific Coast Rubber Manufacturers' Association: Joseph V. Selby, of the Boston Woven Hose and Rubber Co., president; C. H. Chase, of the Bowers Rubber Works, vice-president; Geo. N. Didion, secretary, and W. B. Hechmann, of the United States Tire Co., treasurer.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

A GENERAL round of the various rubber establishments finds a fair degree of contentment with the general trend of trade. To be sure quotations of crude gum of several varieties are not exactly satisfactory to either buyer or seller, and sales are not reaching that magnitude which has sometimes been the case. However, a good deal is moving in the aggregate, even though individual transactions may seem small.

There has been a more contented spirit displayed by the rubber clothing men than by the garden-hose manufacturers, but the latter seem to be having their inning about this time, and they are improving their opportunity.

The demand for mechanical goods seems to have, to some extent, deteriorated into a retail business. Purchases are smaller, but to compensate, at least in part, there are more of them. Druggists' sundries are going well. Boots and shoes have been in good demand, as far as orders are concerned. Automobile tires are being made and sold in prodigious numbers, and as far as your correspondent has been able to learn, every producing plant is behind its selling agencies in filling orders.

Speaking of automobile tires, the Back Bay, out towards Brookline, is rapidly being monopolized by the automobile trade. The Goodyear Improvement Company has purchased a large tract of land, nearly 130,000 feet, on Brookline avenue near the junction of Commonwealth avenue and Beacon street. The lot fronts the new Fenway Park baseball grounds, and extends 460 feet along Brookline avenue, and has a varying depth of from 175 to 380 feet, the whole having an assessed value of \$88,600. The purchase price is reported to be considerably above that figure. Plans are now being prepared for the erection on this lot of a handsome brick-faced, reinforced concrete structure, to be occupied by the Goodyear Tire and Rubber Co. of Akron as a distributing point for No-Rim-Cut tires. This company built its present Boston salesroom, a handsome five-story building on Boylston street, three years ago, but has found it altogether too small for the business it is doing. The company has adopted the policy of owning its headquarters in the various large cities, and this move is in line with that policy. As an indication of the extent of the business of this company a few figures from a confidential communication sent the members of its sales force may be of interest. On June 5 the day's production of automobile tires was 4,431 casings and 5,000 tubes. June 6 the number of casings was 4,600, and on June 7 the factory turned out 5,002 casings and 5,510 tubes.

Probably the proudest moment in the life of Francis H. Appleton was when he first met King George V of England, and presented to him the certificate of honorary membership in the Ancient and Honorable Artillery Company of this city. The second proudest time is yet to come, when, as captain of this noted military organization, he will hob-nob with His Majesty on the 15th of this month at Buckingham Palace. The third proudest moment is pictured here. It is the moment when Governor Eugene N. Foss, of Massachusetts, delivered to Lieutenant Appleton the spontoon, the symbol of his new rank, captain commanding of the company. "Artillery Election" is an annual event in Boston, and June 3, 1912, was the 274th consecutive time that the members of this company have deposited their ballots on the head of the big bass drum.

The anniversary ceremony was an elaborate one. Fifers and drummers sounded the reveille at daybreak in front of the State House and the down town hotels. (In ancient days this was done under the windows of the members of the company.) The company assembled, marched to the State House, where the governor and staff took position in the line, then proceeded

to the historical Old South Church, where the election sermon was preached. Then the company marched to Boston Common, where the drum-head election followed, and Governor Foss received the resignations of the retiring officers and bestowed the insignia upon the newly elected ones, who were hailed by the booming of cannon.



CAPT. APPLETON RECEIVING STAFF FROM GOV. FOSS.

Captain Appleton presided at the dinner which was held in the historic "Cradle of Liberty"—Faneuil Hall—at which many notables were present. Several members of the rubber trade who were included in the assembly were warm in their praise of the grace and dignity with which he presided, and of the eloquence of his address.

The Hub Rubber Co., the incorporation of which was mentioned on page 457 of our June issue, will change its name to the Hubmark Rubber Co., in order to more fully advertise the trade mark of the Hub, which will hereafter appear on all the first-quality rubber boots and shoes made by the Boston Rubber Shoe Co. The Hubmark company will, for the coming season, confine its business to New England and the vicinity of New York City, and will enter upon an extensive advertising campaign, which will be in charge of Chester J. Pike, who has recently allied himself with the A. W. Ellis Advertising Agency of this city.

Harry Converse caught a good string of fish while on a recent outing at Rangeley. His best catch was an eight-pound salmon.

The J. H. Stedman Co. is the new name of the well-known concern J. H. Stedman & Co., Inc., at 555 Atlantic avenue. There is no other change but the name, which is more euphonious and significant of the corporate character of the business. The same officers remain, the accounts continue, and the business shows no change except that it is increasing steadily in importance and extent. The premises have been improved, the offices rearranged and enlarged, thus giving the main business office and the accounting department the needful additional space, and new offices at the Atlantic avenue front of the building for Messrs. Stedman and Turner.

Charles A. Coe, of the United States Rubber Co., is summering at Annisquam, on Cape Ann, and his principal recreation is

his motor boat, in which he takes short cruises around the waters of the Cape. Recently a large party of excursionists in a big motor boat got stranded on a bar, because of the unusually low tide, and Mr. Coe with his little launch made a rescue, which, while not especially thrilling, saved the party from the tedious wait for another tide and a wetting from the sudden downpour of the thunder shower which followed.

The Monaquot Rubber Works Co., of South Braintree, has recently enlarged its fine reclaiming plant, increasing its capacity 33 per cent. in the production of naturized rubber. The main building has received a substantial addition, and another structure nearly as large has been built between it and the Monaquot river, from which the company takes its name. A new office building has also been added. The company owns extensive rights to this river and its power, but its greatest value is not so much the power, as the quality of the water, which is remarkably pure and hence especially valuable for the processes carried on there. The plant is most favorably situated on a triangular plot of nearly 40 acres, between two branches of the New York, New Haven & Hartford Railroad, and has a siding of some 2,000 feet directly to the mills. President Robert C. Harlow (formerly of the Boston Woven Hose Company's Plymouth plant) and Treasurer J. H. Stedman have personal charge of the business at the South Braintree plant, while Sales Manager Merton A. Turner is at the Boston headquarters at 555 Atlantic avenue.

N. Lincoln Greene, manager of the American Rubber Co., has a host of friends in the trade, and they will all be interested in the announcement made last month in San Francisco of the engagement of Miss Adelaide Deming, of that city, to Mr. Greene. Miss Deming is the daughter of the late E. O. Deming, of San Francisco. For the last few years she has made her home with her sister in New York. She returned to her native city recently to visit her mother, and is receiving the congratulations of her many friends on her engagement. Mr. Greene is likewise the recipient of the hearty good wishes of his friends. No date has been announced for the wedding, but it is expected to take place in New York in the early autumn.

The Beacon Falls Rubber Shoe Co. has moved into its new building at the corner of Congress and Purchase streets, only a few rods away from its former location. The new premises were arranged under the personal supervision of Daniel E. Gray, the manager of the Boston selling agency of the company, and are most convenient for the steadily growing business of the company.

An event of interest in the rubber trade was the public dedication of an artistic bronze tablet in the Malden Public Library as a tribute to Elisha Slade Converse and his wife, Mary Diana Converse, for their munificent gift of the library building to the city as a memorial to their son.

The public exercises were held on the evening of June 19. Dr. Godfrey Ryder, chairman of the board of trustees, presided, and the principal address was by Dr. F. H. Rowley, formerly pastor of the first Baptist Church of Boston and now president of the Society for the Prevention of Cruelty to Animals. The clergyman was a personal friend of Deacon Converse, and his eulogy was a glowing, yet sympathetic one. The exercises were graced by a large attendance.

The cornerstone of the new Forsyth Dental Infirmary for Children was laid June 4 with impressive ceremonies, attended by the donors of the institution, city officials of Boston, members of the medical profession and leading citizens.

The exercises opened with prayer by Bishop Lawrence, after

which a letter was read from Cardinal O'Connell, expressing his regret at being unable to be present.

Then the following address was made by President Thomas Alexander Forsyth:

"In behalf of the trustees of the Forsyth Dental Infirmary my brother John and I wish to sincerely thank you all for your attendance at the exercises of the laying of the cornerstone of this infirmary, which is being erected in memory of our brothers James Bennett and George Henry Forsyth. The object of this infirmary is to bring about a stronger and healthier generation, which we hope to accomplish by starting with the children's first or temporary teeth and caring for these preparatory to their receiving their permanent teeth. We also intend caring for the children's adenoids and tonsils, so that when they reach the age of 16 years they will be in a good physical condition.

"When this infirmary is completed it will be the first of its kind in the world, and we are satisfied that the good work it will accomplish will be patterned by other cities in this country as well as abroad."

The cornerstone was then laid by John Hamilton Forsyth with the following brief address:

"To the glory of God and in loving memory of my departed brothers James Bennett and George Henry Forsyth I have laid this cornerstone, trusting the care and attention the children will receive in the Forsyth Dental Infirmary shall be the means, through God's blessing, of making a stronger and healthier generation in the years to come."

After the laying of the cornerstone, Mayor Fitzgerald of Boston was called upon and paid a warm tribute to the munificent contributions of a number of the private residents of Boston to the general welfare of that community and to the world at large, mentioning particularly Henry L. Higginson, Mrs. Robert D. Evans, and others, and concluded his address as follows:

"The Messrs. Forsyth have not only added this superb building to the group which is rising along the Fenway, but they have set us an example more precious than the wealth which they have devoted to this purpose. They have exemplified anew the ideal of the superior minds in all ages, that it is more praiseworthy to give than to acquire, and that happiness is obtained by serving others rather than ourselves. They may pass from this ceremony assured that they have done much to raise the standard of health and beauty here, to elevate the dental profession, to enhance the good name of Boston, and to stimulate and renew our faith in the essential goodness of mankind."

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE merger of The B. F. Goodrich and Diamond Rubber companies involves the consolidation of the manufacturing ends of these plants, the amalgamation of the sales departments in the various branch offices, and the hearty coöperation and united efforts of the management of each of the old companies. Taking into consideration that both of the plants from their inception have been organized upon the best business lines, and that the buildings have been erected upon broad lines, and for the purpose of manufacturing various rubber goods, and that the two plants are located side by side with only a fifty-foot street between, that the side tracks and transportation facilities have been used in common and that the training of many of the factory foremen and workmen has been given in one shop and used in another, it is easily seen how, within a short time, the two factories will become one unit, with over 10,000 factory employes, working to a greater advantage than before.

The amalgamation of the sales departments in the various branch offices will evidently be an evolution rather than a revolution, taking some time. It is known to most Akron residents that the men in the branch offices and factory offices have all

the work they can do, and it is very difficult to secure good men to take the important positions held in the sales departments, both in Akron and in the branches; so that as many men, if not more, will be employed in the sales departments as were employed before, and new sales branches and sub-stations will no doubt be established, thus making room for men who will lose positions as heads of the branch offices. At the same time, where two branches are consolidated, the amount of business carried on will not be lessened, but increased. The volume of business will be greater, and consequently the number of people to take care of it must be greater. This company is actively pushing forward its foreign trade, and needs experienced help to handle the business in foreign countries. The hardest proposition for a rubber manufacturer is to secure capable men to fill the important positions, and the sales department is one of the hardest for which to secure them.

The Goodrich and Diamond companies have been fortunate in securing some of the most successful business men and rubber experts. The personnel of the new organization will represent some of the strongest talent in the rubber world. Bertram G. Work will be president. His father, Alanson Work, was one of the founders of the Goodrich company. Bertram G. Work is a graduate of Yale. After his graduation he learned the factory end of the rubber business. Starting at the bottom of the ladder, he worked in all the departments of the factory. Securing a thorough knowledge of this business, he was made general superintendent in 1892, and served in that capacity until 1902. He was then elected vice-president, and filled that office until 1907, when he was elected president. The magnificent growth of The B. F. Goodrich Co. has been under his administration, and is largely due his efforts.

A. H. Marks will be vice-president and general manager of the new company. He is a Harvard man. He was chemist for the Boston Woven Hose and Rubber Co. from 1895 to 1896, and chemist of the Revere Rubber Co., Boston, in 1897. In 1898, in company with W. B. Miller, he became identified with the Diamond Rubber Co. With them were W. B. Hardy and A. H. Noah. Under this organization the Diamond Rubber Co. has had its wonderful growth. Mr. Marks was president of The Alkali Rubber Co. His organizing ability and his knowledge as a rubber expert have given him the soubriquet, "Wizard of the Art."

E. C. Shaw, a Yale man, will be one of the second vice-presidents and works manager. Mr. Shaw is an engineer of high standing, and an organizer of much experience and ability. He has been identified with The B. F. Goodrich Co. since 1895.

H. E. Raymond, sales manager of The B. F. Goodrich Co., and W. B. Miller, who held the same position with the Diamond Rubber Co., will have charge of the sales department of the new company. H. E. Raymond will have the title of second vice-president and sales manager, and Mr. Miller that of second vice-president and assistant sales manager. Mr. Raymond has been closely identified with The B. F. Goodrich Co. for years, having successfully officiated in several capacities, and the great volume of trade, the thorough manner of covering the rubber field, both national and international, by this company, are attributed largely to the untiring efforts of Mr. Raymond.

W. B. Miller in 1898 was assistant manager of The Revere Rubber Co. Since that time he has been connected with the Diamond company. It is said that he entered the Revere company as an office boy, and later became salesman, and in fifteen years became assistant manager. Mr. Miller's experience, generalship, knowledge of men and salesmanship, have made The Diamond Rubber Co.'s selling force the compact and efficient power for business that it is today.

C. B. Raymond, secretary of the new company, has been connected with the Goodrich company for many years. His experience and ability have thoroughly equipped him for the duties of this new position.

W. A. Means, treasurer of The B. F. Goodrich Co., will be treasurer of the new company. He is a financier of large experience, and has been with The B. F. Goodrich Co. for some time.

The other officers of the board will be F. A. Hardy, chairman of the board; F. H. Mason, vice-chairman of the board, and G. E. Norwood, assistant treasurer.

STATEMENT OF THE B. F. GOODRICH CO. OF NEW YORK, AND SUBSIDIARY COMPANIES.

The following is the consolidated balance sheet showing the position of the company as at April 1, 1912, after the issue of its capital and the taking over of the assets and liabilities of the B. F. Goodrich Co. of Ohio and the Diamond Rubber Co. of Ohio.

Real estate, buildings, plant, machinery, goodwill, patents, etc., less unmatured purchase money mortgage of \$30,000.00.....	\$72,325,188.42
Investments in Other Companies.....	1,650,236.89
Stock in Treasury.....	266,990.38

CURRENT ASSETS:

Inventory of materials and supplies, goods in process and finished products, partly estimated	\$17,776,579.76
Trade accounts receivable less reserves for bad debts, discounts, etc.	5,035,571.22
Other accounts receivable.....	1,791,581.29
Bills receivable	463,037.05
Cash in banks and on hand.....	1,390,738.25
	26,457,507.57
Prepaid insurance, interest, etc., chargeable to future operations	177,681.20
	\$100,877,604.46

CAPITAL STOCK:

600,000 shares of common stock of \$100.00 each.....	\$60,000,000.00
300,000 shares of 7 per cent. cumulative preferred stock of \$100.00 each	30,000,000.00
(Redeemable in case of dissolution, liquidation, merger or consolidation at \$125.00 per share)...	\$90,000,000.00
Surplus	2,200,000.00

CURRENT LIABILITIES:

Bills payable	\$4,310,665.23
Accounts payable	1,173,811.75
Sundry accruals	153,542.98
The B. F. Goodrich Co. of Ohio	937,684.98
The Diamond Rubber Co. of Ohio	850,000.00
	7,425,704.94
Miscellaneous Reserves	1,251,899.52

\$100,877,604.46

The combined profits of The B. F. Goodrich Co. for the period from January 1, 1908, to December 31, 1911, and of The Diamond Rubber Co. for the period from October 1, 1907, to September 30, 1911, after charging all expenses of manufacture and management and selling expenses but before providing for Depreciation of Property and Plant, and the combined gross sales, were respectively as follows, including in each instance the operations of the Goodrich Company for the calendar year and of the Diamond Company for the fiscal year ended September 30.

	Profits.	Gross Sales.
1908.....	\$4,615,098.42	\$22,580,107.63
1909.....	8,063,146.60	32,087,854.03
1910.....	6,384,059.56	45,800,534.93
1911.....	7,805,312.48	48,528,112.01

the Profits being equal to an average per annum of \$6,716,904.26.

* * *

The stockholders of The Goodyear Tire and Rubber Co. voted on May 28 to increase the company's capital stock from five million to ten million common, and from one million to five million preferred. C. W. Seiberling, vice-president of this company, states that the five million preferred will be issued at once. Instead of being redeemable at 105, as it is at present, it will be re-

deemable at 120 at the company's option after January 1, 1915, the holders of the present one million preferred having agreed to exchange their stock share for share for new preferred. The balance of the new preferred, four million, will be offered to the common stockholders at par. The new plan is wholly separate from the transfer completed some weeks ago, in which the stockholders received 100 per cent. stock dividend and rights to take \$340,000 treasury common stock at par.

The Goodyear Tire and Rubber Co. contemplates several additions and two new buildings. The first will be an addition of two stories to building 13, now used as a factory building. This building will be 296 feet x 60 feet, and of brick steel and reinforced concrete construction. Plans are being prepared for a large garage, 405 feet x 78 feet, and another new factory building, details of which have not been given to the public.

Much speculation has been put forth as to the reason why The B. F. Goodrich company made its cut in the price of tires at the beginning of the year. The writer has been informed, upon inquiry, that some manufacturers in this country were giving different prices of tires to various dealers and that to make a regular price to all, so that one wholesaler would not buy at one price and another at another price, The B. F. Goodrich Co. made a straight cut of 15 per cent., thus enabling the small consumer to stand on an equal footing with the large consumer. At the same time, the price of rubber would allow a cut in the price of tires, but other material and labor have not decreased in cost, but, if anything, have increased in the last few years. The fact that most of the rubber tire plants are, and have been for some time, running two shifts and some three, that it is not their policy to run night shifts unless compelled to, and the fact that many of the companies are back in their orders, leads the writer to believe that the demand is still greater than the supply. The writer does not believe that there will be any further price war between the rubber companies, at least for some time to come. The demand is increasing at least as rapidly, if not more so, than the supply, and the additional uses to which rubber goods are put, and the amount of new articles of which crude rubber is a part, that are placed on the market each year, enlarge the field of this line of business.

Old stockholders of The B. F. Goodrich Co., of record of April 6, were agreeably surprised with an additional dividend of \$5 per share on the old stock. This is a final dividend of the old company, the cleaning up before its transformation into the New York Company. This is \$5 additional to what was anticipated.

H. B. Dodd, of this city, formerly with The Diamond Rubber Co., has recently received a patent on a tire which he calls the "Dreadnought," the claim for which is that it does away with the inner tube. The casing is all in one piece, which grooves the bead which the tire fits. The bead is held in place by a steel rim which is clamped over the bead by bolts from the outside. The Dreadnought tire differs from the ordinary tire in that the strips of fabric in it lap around the bead and go back into the body of the tire, and are thus vulcanized. Mr. Dodd is now making a test trip of the tires.

SUPPORTING LOCAL INDUSTRIES.

An interesting feature of the recent Jersey City local exposition (held under the motto "Know Your City"), was the exhibit of the Jersey City fire department. It included three lengths of fire hose, prominently branded with the names of the Eureka Fire Hose Manufacturing Company, New Jersey Car Spring and Rubber Company, and Voorhees Rubber Manufacturing Company; all of which, it is understood, furnish hose to the local fire department.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

RUBBER news in Chicago lies buried so deep beneath political discussion at the time of writing, that it is somewhat of a task to unearth it. The city is up to its neck in the Republican National convention. As an instance of the present state of the average business man's mind, your correspondent approached a manager of a local rubber goods concern who was busily engaged in reading a communication on his desk. "What do you think of the rubber situation in Chicago just now?" was asked. Without looking up and still in a brown study over the paper in hand, the manager replied offhand, "Oh, I think it'll be Roosevelt, don't you?"

Chicago weather during June has been a series of phenomenal conditions, and despite this fact reports that business is good are heard on all sides. Only one or two warm days have visited us as yet and still for the most part the days have been bright and sunny. A cool spell—some say "cold"—has struck us just now and this always more or less affects the rubber trade in general. Tennis shoes seem to have a remarkable sale throughout the Middle West and the dealers in this staple are always to be found with smiling faces, except in cases where the orders exceed the supply.

One of the interested spectators of the convention was Edward R. Rice, manager of sales of the United States Rubber Co. Mr. Rice, in company with Kimber L. Barton, of Kansas City, Richard C. Hall, the western sales agent with headquarters in Chicago, and A. F. Solbery, Mr. Hall's assistant, attended the convention nearly every day.

"It's pretty hard for me to get away from the office, too," said Mr. Hall, "because our sales in tennis shoes are remarkable. We have been making shipment after shipment and just simply can not make them fast enough to supply the demand. It would seem that with the cool weather we have been having, the demand would not be so great, but from the number of orders that are rolling in there must be some fine 'tennis' weather throughout the West."

"In spite of the cold weather we are keeping right up to the standard," said A. W. Moore, local manager of the Firestone Tire and Rubber Co.

R. T. Davis, local manager of the Boston Woven Hose and Rubber Co., with offices at 667 West Lake street, has just returned from a two weeks' visit to Boston where he attended the conference of managers. He expressed himself as pleased with the trip, despite the fact that he returned to find work piled mountain high on his desk.

No changes have been made in the local sales force of the Diamond Rubber Co. as a result of the consolidation of that company with the Goodrich people. A. S. Franklin, assistant manager, reports business as "booming."

In speaking of the solid Staggard electric tire which the Republic Rubber Co. manufactures, Manager J. W. Maguire, of the local branch, declared that this tire increases the resilience and adds to the comfort and enjoyment of electric motoring.

"The studs on the tire are so arranged that the intervals between the studs in one row and those of the adjoining row are placed at alternate distances so that the studs are always on the ground as the tire revolves," he said. "This gives a smooth, continuous cushion tread, the depressions or grooves between the studs giving added elasticity to the tire. This makes for easy and comfortable riding. Each of the studs takes hold on the

paving, making motoring safe on wet pavements and slippery streets. Women driving electric cars are discovering that the Republic solid Staggard tire not only gives protection against accidents but makes chains unnecessary."

John H. Kelly, formerly Chicago manager and now general sales manager of the company with headquarters at Johnstown, Ohio, will be in Chicago to witness the reliability run to Milwaukee between the Chicago Motor Club and the Chicago Athletic Association.

Gen. C. Edward Murray, treasurer of the Empire Rubber Manufacturing Co., together with Col. Margerum, an old school chum, were two of the most interested visitors to the convention. F. B. McKay, local manager of the company, also attended the big political fight. He expressed himself as pleased with both the spectacle and the way that the rubber hose business is booming just now. George M. Munsa, formerly western salesman for the company, has been placed in charge of the local tire end of the business. He is succeeded on the coast by C. W. Linde, of Portland, Oregon, formerly manager of one of the coast branches of the Pacific Hardware and Steel Co.

Claire Kenyon, of C. Kenyon & Sons, Brooklyn, New York, was one of the visitors to the convention.

S. E. Linton, formerly with the Livingston Company of Bloomington, Illinois, has joined the sales force of the Duck Brand Company in Chicago.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

A NEW tax law passed at the last session of the Rhode Island General Assembly will exact a heavy toll from the rubber industry of the State. There are eight corporations engaged in this industry which come in under the provisions of the law because of the size of their capitalization.

Under the old method of taxation real estate and personal property were the two principal sources of income from taxation, but under the new arrangement 40 cents is exacted from every \$100 worth of capitalization over \$100,000.

Taken in alphabetical order the rubber companies with the amount of their corporate excess and the new tax levy are as follows: American Wringer Co., \$1,070,738.25, \$4,282.95; Davol Rubber Co., \$134,956.05, \$539.82; Mechanical Fabric Co., \$557,096.49, \$2,228.38; National India Rubber Co., \$962,802.59, \$3,851.21; Phillips Insulated Wire Co., \$1,380,282, \$5,521.12; Revere Rubber Co., \$1,631,090.76, \$6,524.36; Washburn Wire Co., \$539,285.94, \$2,157.14; Woonsocket Rubber Co., \$824,864.93, \$3,299.45.

The hose room of the National India Rubber Co., at Bristol, which was closed about two months ago when the business of manufacturing fire hose, along with other departments, was moved to Cleveland, Ohio, is to be one of the rooms at the plant to be fitted for the purpose of manufacturing copper wire. This room is 200 feet x 40 feet. The work of putting in concrete pier foundations is nearing completion, and the task of constructing a concrete floor is to be started soon.

Business has picked up to such an extent at the plant of the Consumers' Rubber Co., Bristol, since the Walpole Rubber Co. assumed control of the reorganized corporation, that an addition is now being built.

The new structure is to be 50 feet x 30 feet, two stories high, and will be for the purpose of extending the calender and cutting departments. General Manager Terrence McCarty states that business is increasing at such a rapid rate that more additions will probably have to be made soon.

Early in June the manufacture of lawn tennis shoes at the National India Rubber Co.'s plant was decreased slightly, and the making of gum shoes was increased ten cases daily.

The main shaft in the wire insulating department of the National India Rubber Co.'s wire insulating department broke on June 18 following the installation of a new rope belt and the department was closed. Repairs were completed in two days and 200 persons returned to work.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

THERE has been enough warm weather in San Francisco during the past few weeks to cause people to realize that summer is on in earnest. Few men in the rubber business will venture much guess as to the future of business, and yet from their general remarks it is evident that all of them are now doing as well as could be expected. Nothing is claimed for the mechanical rubber business at the present time, owing to the close competition, but good money is being realized all around on the rubber tire business and druggist's sundries. A considerable amount of garden hose has been disposed of this summer. The salesmen who are now taking orders for fall delivery of rubber boots and shoes also report that they are meeting with considerable success. The conditions commercially never looked brighter than they do now, and it is safe to say that every rubber merchant looks forward confidently to a big year for 1913.

The Bowers Rubber Works report that they are now nearing the close of the most prosperous fiscal year in the history of their business. This firm has completed arrangements for opening a new branch house in Seattle, Washington. They have leased there a commodious store at 312 Occidental avenue, which they have fitted up with every convenience for a modern branch store, and will carry a full stock of the mechanical lines which they manufacture. The business of the new branch will be in charge of D. D. Tripp and F. A. Hollabaugh. Both of these gentlemen have been with the company in the sales department for a number of years, and are well qualified for their new positions.

R. H. Pease, president of the Goodyear Rubber Co., reports continued improvement in business:—"There has been an unusual business on garden hose, which has been exceptionally good on account of so much dry weather throughout the spring and past winter. Naturally the boot and shoe business, by way of advance orders, is coming in slowly, on account of our customers having carried over stocks, but prospects are excellent for a good fall trade."

C. C. Case, vice-president and general manager of the Revere Rubber Co., is now visiting the Gorham-Revere Rubber Co. in San Francisco.

Business with the new branch tire store of the Gorham-Revere Rubber Co. has opened up well. This branch is located at 569 Golden Gate avenue, and is fitted up with every appliance and convenience of a modern tire store. The Gorham-Revere Rubber Co. reports that the tire business has been very good, and that the garden hose business for 1913 is opening up very briskly, with a large number of orders for hose to start with.

The fire commissioners in San Francisco are again showing a tendency to vacillation in the matter of requirements for bidding on fire hose. Last month they made the way clear for open bidding by doing away with their own private specifications. It looks now as though they would readopt the specification system, but eliminate the chemical tests.

E. H. Parrish, foreign representative of the Gorham-Revere Rubber Co., returned last week from China, Japan and the Philippines. He was away for four months on this trip, and his orders total up to a sizable figure, indicating that there is a good rubber market in the Orient.

Mr. Halleck, president of the Ohio Rubber Co., is now visiting the trade in San Francisco and stopping at the St. Francis.

Mr. French, manager for the local branch of the Pennsylvania Rubber Co., reports that he has been doing an especially good business on the firm's vacuum-cup tires. He has recently returned from a trip to the Northwest, and states that conditions in that territory are very favorable.

The O. K. Vulcanizing Co. has been incorporated in Los Angeles, with a capital stock of \$50,000. The original subscribers to the stock are G. P. Hastings, U. B. Pitman and A. H. Jackson.

The American Rubber Co., of San Francisco, has organized a baseball team which is clearing up the "bushers" right and left. They do not find opposition enough in rubber circles for their prowess, and consequently have been playing in a league known as the Commercial League. The B. F. Goodrich Co. has organized a baseball team, and there is a promise that more will be heard of their ability anon.

The proposition of the United States Rubber Co. to distribute shares of stock to its employees has been looked upon very favorably on this coast. It is a popular move, and appeals to those employees who can afford to take the matter up as a profitable investment.

The fine new store of the Goodyear Tire and Rubber Co., out on Automobile Row, is rapidly nearing completion.

H. S. Firestone, president of the Firestone Tire and Rubber Co., whose headquarters are located at the corner of Van Ness avenue and Fulton streets is enthusiastic over the outlook for the future. He believes that there will be an enormous increase in the production of automobiles, and particularly in those for commercial purposes, especially in the line of trucks.

The Goodman Puncture Proof Tire Co. has recently been incorporated in Stockton, California.

SOYA BEAN OIL.

The rapidity with which soya oil has risen to popularity is hardly more interesting than the possibilities of its employment in the rubber industry and the manufacture of raw materials for the rubber trade. On a recent occasion when Dr. Frederic Dannerth, the rubber chemist, was interviewed at his home in Passaic, New Jersey, he was found busy in an investigation of the oil and in answer to the question as to what he thought of the oil as a compounding ingredient, he said:

"Soya oil offers immense opportunities for the oil merchant and for the rubber manufacturer, but like many other interesting things it is being overlooked by both. The rubber goods manufacturers do not care to adopt new materials without some knowledge of their properties, and the manner of using them. On the other hand the oil merchants and importers have evidenced no desire to demonstrate to the manufacturers the possibilities of this material.

"It would certainly be very desirable if these two camps would get more clearly to understand the needs of one another."

THE CANADIAN ANKLE STRAP RUBBER.

THE ankle strap rubber, as a matter of fact, is very far from being new. It is a full generation old; but to a great many people, even in the rubber footwear trade, it would constitute a distinct novelty, for it has been little in evidence in the output of American rubber manufacturers for some years past. Catalogs of twenty years ago will be found to contain illustrations of the ankle-strap rubber. Then the illustrations began to drop



"RITA" ANKLE STRAP RUBBER.

out and the catalogs and price lists simply had a line under "sandals" and "croquets" saying "Ankle straps 10 cents extra." Lately few of the American companies have made any mention whatever of these shoes. But the Canadian Rubber Co. of Montreal, Limited, advertises and illustrates the women's "Rita," a croquet made with an ankle strap which the accompanying cut illustrates. The ankle strap really serves a worthy purpose. It is hardly necessary for city dwellers, but in the country, where in the spring and fall the mud is often deep and has a marked pulling effect on a rubber shoe, the ankle strap on a low-cut croquet often saves the shoe from being dislodged. Just why the shoe has lost its early prominence in the American trade is not obvious. Probably, however, the high-cut "storm" rubber, which is fairly proof against mud suction, has, in this country at least, largely taken the place of the former sandal and croquet with the ankle strap.

A CABINET FOR CRUDE RUBBER SAMPLES.

The accompanying cut is made from a photograph of a cabinet used by Alexander Macpherson, Toronto, Canada, for keeping samples of crude rubber, so that they can be referred to very



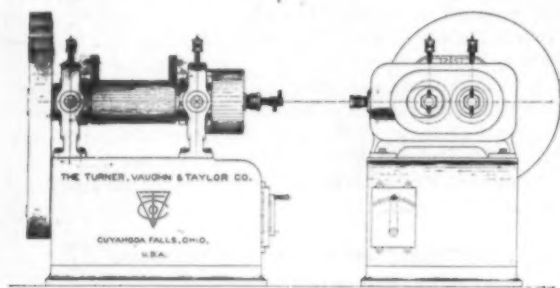
CRUDE RUBBER SAMPLE CABINET.

quickly. The container holds a dozen small boxes, as shown in the cut, and the whole cabinet costs less than \$1—as inexpensive as it is convenient.

EXPERIMENTAL MILL FOR LABORATORY PURPOSES.

MORRIS A. PEARSON, formerly with the Farrel Foundry and Machine Co., but now associated with the Turner, Vaughn and Taylor Co., Cuyahoga Falls, Ohio, in the capacity of rubber machinery designer, has recently designed an experimental mill for laboratory purposes, in which will be found several new and novel features.

The rolls are of the usual size, 6 inches by 12 inches, made of chilled iron, but fitted with a new type of steam connection. The whole machine is placed on a cast-iron base cored out underneath to receive the motor and reducing gears. The arrangement is such that both are easily accessible from the outside while the design is compact and neat. The controller of the motor is within easy reach of the operator, on the right-hand side of the base. A new type of automatic guide is used in order to get the greatest possible working space on the rolls. All gears, both connecting and driving, have cut teeth and are



AN EXPERIMENTAL MILL.

fully protected by means of substantial gear guards. The mill is complete in every way, with motor, gears, etc., ready for operation. It is of sufficient height to be set directly on the floor or flush with it and requires only 2 feet 6 inches by 3 feet floor space.

This mill is also built to accommodate varying speeds, in order to get different frictions. This will be true of experimental calendars as well, which are designed along the same line as the mill and to be used with it. Following an increased demand, a laboratory washer has recently been designed which will make the laboratory outfit complete.

In addition to the above, Mr. Pearson has developed a full line of mills, crackers, presses, etc., which are now ready for the market. The company above noted has been well known to the trade for the past 15 years, through the popularity of their Tub Washers and Reclaimed Water Separators.

QUAYULE AND RAW RUBBER.

Under No. 9018 the Bureau of Manufactures, Department of Commerce and Labor, publishes an inquiry from an American consul in a European country, who reports that a resident of his district would like to communicate with persons in the United States controlling quayule and raw-rubber interests in Mexico or Central America. He desires connections for his trade with European rubber industries, and estimates that he could dispose of about \$1,000,000 worth of this product to the local trade.

The factory of the Hardman Tire and Rubber Co., at Belleville, N. J., was seriously damaged by fire on June 1, the damage being estimated at \$150,000. The building was a modern brick structure and replaced one also destroyed by fire about five years ago. The factory had 200 employees.

SPECIFIC GRAVITY FROM A MANUFACTURER'S STANDPOINT.

THE following letter has been received from W. T. Bonner, Chemical Engineer, Trenton, New Jersey, in regard to the article which appeared on page 424 of our June issue, by Dr. Lothar E. Weber, on "The Significance of Gravity in Rubber Manufacture."

To the Editor of THE INDIA RUBBER WORLD:

Dear Sir:—The writer has read with interest Dr. Weber's article in the June edition of your paper on specific gravities of rubber compositions, the main idea being to show the difference between the actual and apparent gravities of rubber compounds.

Dr. Weber's position is a correct one, and should receive the unqualified approval of rubber manufacturers and chemists. That the true gravity of a composition must be equal to the gravities of its component parts is a fact, and under careful conditions will be found to agree.

However, Dr. Weber loses sight of a fact that is of great importance to the rubber manufacturer. It is not the relative difference between the apparent and the real from a technical standpoint, but rather the *indicated gravity* of the manufactured article as it appears and is used in commerce, and *not* of the compound from which the article is made. The question of air or *vacuo* occupying space in an article of rubber composition is not of as much importance to the manufacturer as the specific gravity of the article offered for sale. This is and should be to him as definite a standard as atoms and molecules are to the chemist. The manufacturer and his customer want to know the weight per volume of the goods as offered for sale in their commercial form. This should be as obvious to the chemist as it is to the manufacturer, but at the same time it is equally important that both fully understand both sides of the question.

For illustration take sheet packing—a square yard of a stated thickness weighs so many pounds. In its commercial shape it has a specific gravity to correspond to its commercial weight and volume. To disintegrate a sample and exhaust the air would give a true specific gravity of the compound, but a false standard of the goods or article. Volume and weight by which it is known and used would not agree. The fact that its true weight per volume is heavier has no bearing upon the market value, but it is a guide to the manufacturer, who by the difference can tell if his goods are "sponging" more than is good for quality and service.

Again—to carry the illustration still further—a manufacturer receives an order for "sponge" stock, one of the requirements may be that it not only float, but be capable of sustaining added weight before equaling that of water. A compound with a specific gravity as much as 1.35 properly sponged might fill the requirements. Then by taking the specific gravity of the finished goods it is simple to estimate not only how much lighter the product is than water, but how much added weight it will sustain.

By the foregoing it can be readily seen why a standard of specific gravity is just as necessary to the article in commercial form, as the actual or technical standard of the composition.

Atomic and molecular weights are constant. Variations are produced by additions and conditions. Even the rubber molecule undergoes a slight permanent expansion when vulcanized, and consequently is of lighter specific gravity than the uncured. While the work of Dr. Weber is of great value to the manufacturer, as a guide to intelligent work and exact conditions, yet the manufacturer's standard of gravity, as applied to his finished product, is to him of equal importance, and should be duly recognized.

W. T. BONNER.

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

AS pointed out more than once in THE INDIA RUBBER WORLD editorial columns, synthetic rubber is now an established fact, though not exactly a commercial article. It is, however, recognized by those chemists who are working on the subject, that it will never do to depend upon turpentine as the

SYNTHETIC RUBBER.

raw product of the isoprene which is to be polymerized into rubber. There seems to be a general agreement that the raw material for the rubber manufacture of the future will be a carbohydrate, most probably starch, as this can be obtained from plants which can be grown cheaply almost anywhere. From inside information I have obtained, the problem of the moment is to find the particular ferment which will convert the starch into iso-amyl alcohol, which by a known chemical reaction can be converted into isoprene. The task of finding this ferment has proved a somewhat formidable one, but the chemists engaged say that ultimate success is only a matter of time, though at the moment they confess that there is no progress to report.

Whether there is anything or not in the Russian process which has been well reported in the press, it hardly seems likely that any one patentee or financial group will monopolize the profits of the future, as several patents have been granted both in England and Germany for somewhat similar chemical processes. Although the task of producing synthetic rubber is now in reputable hands, the energies of the quack operator show no diminution. Perpetual efforts, something on the lines of the evergreen Spanish treasure swindle, are being made to inveigle the ignorant capitalist into subscribing funds to finance the process prior to its sale for a fabulous sum. The details of a quite recent case are in my possession, but although they would make interesting copy, I don't know that I should be justified in giving publicity to them.

IN A recent case in a provincial law court it was stated by counsel, and evidently acquiesced in by the judge, that there were no secrets

SECRETS IN THE RUBBER TRADE.

now-a-days in the rubber manufacture, and that there was nothing underground in a firm trying to get workmen from another firm carrying on the same branches of the manufacture. From what I have gathered in conversation with manufacturers on the subject the above view is not generally held. It is agreed certainly that in a general sense the various processes of vulcanizing are common property, but the exact details with regard to particular goods are not to be found fully described in technical literature, and that this being so they can fairly claim to come in the category of trade secrets. Counsel in the case under notice said that since the taking out of Parke's patent in 1846 the cold cure process was well known to everyone in the trade, but he omitted to say that the process as applied has important factors of proportions and times, according to the nature of the rubber to which it is applied. It is a safe supposition that all these details are not known to every manager of a mechanical rubber goods factory, and that many of such managers would require the assistance of men familiar with the work, if they were suddenly called upon to produce certain qualities of cold cured goods.

Without giving particular instances I can call to mind many firms which make a specialty of certain classes of rubber goods, and the main reason why their supremacy remains unchallenged is that would-be competitors lack knowledge of the essential details of the manufacture. It is the attention to detail which counts for so much in the rubber trade, and until a book full

of detail is written by a man thoroughly conversant with his subject, it will be correct to say that trade secrets abound. With regard to the migration of workmen from one factory to another, this has, of course, always occurred, but employers usually guard against too much information being taken away, by making it a rule for men not to frequent departments other than those in which they are normally employed, an injunction, indeed, which generally applies to foremen and under-managers also.

"THE Chemistry of the Rubber Industry," is the title of the volume written by Mr. H. E. Potts, in Messrs. Constables'

A NEW BOOK ON RUBBER.

series "Outlines of Industrial Chemistry." It has already been reviewed by the editor (p. 450, June issue), but

in accordance with custom I propose to say a word or two in this correspondence. A good deal of original work on rubber chemistry has been published in various journals in the past few years, and Mr. Potts has done good service in compressing the pith of this into his book, while giving the original references which those who have the time and inclination to do so can look up for themselves. In some ways the book might be called a small new edition of Weber, an author frequently referred to; and whom we find praised on one page and chided on another. Of course a good deal of what has been published by this or that author in recent years has been in the main a refutation of what had previously been announced authoritatively by another author; and seeing the complexities of the subject this roll of things seems likely to go on. The salient points of the chemistry of colloids are referred to in Chapter I, and though a good many purchasers of the book will probably skip this chapter, and pay more attention to its successors, this is of course no argument against the propriety of its inclusion. The fact that certain published methods of rubber analysis, which were once accepted as gospel, have since been shown to be utterly unreliable, does not seem to be known to all chemists who are connected more or less with rubber analysis; and I know of quite erroneous results being obtained by those who continue to use methods now proved to be quite fallacious. To such chemists Mr. Potts' book is a necessity, though I may say that there are many important details, with regard to the analysis of rubber goods, either not mentioned at all or only in a very casual manner.

It is interesting to see that he is not a convert to any of the various direct methods of estimating the amount of rubber, but is rather in favor of the simple and time-honored method of taking it by difference. The estimation of substitute by weighing the fatty acids instead of making a calculation from the loss in weight of the rubber after saponification is rightly advised, though with regard to this I see that it has recently been decided in Germany that the saponification method is quite unreliable. It depends on the amount of substitute present. In a single texture waterproof cloak containing 35 to 40 per cent. the determination can be made with sufficient accuracy, but if it comes to swearing to 2 per cent. in a cable insulation containing paraffin wax—well, the job should not be taken on by a novice. The amount of space devoted to the estimation of sulphur is quite justified, as it is recognized that the inherent difficulties are much greater than was formerly supposed. In the course of a brief resumé of the chemistry of reclaiming, the author rightly deprecates the too common use of the expression "devulcanized" in the case of products which have only had their free sulphur removed, and which in fact always contain

a higher percentage of combined sulphur than was in the rubber scrap before being reclaimed. References to original papers are a feature of the book which will commend it to many, with which remark I must for consideration of space close this notice of a book which will be a welcome addition to the library of those interested in the chemistry and manufacture of rubber.

UNDER this headline there is an interesting reference in the May issue of the INDIA RUBBER WORLD to the new boot brought out by the Goodyear India Rubber

RUBBER BOOTS WITH LEATHER SOLES.

Glove Manufacturing Co. for miners' use. The advantages of "gum boots" have long been recognized by those who have to work in wet ground, and the existing brands have given satisfaction to agriculturists, officers on stable duty, etc., but the drawback for the miner has been the rapid destruction of the sole. In the north of England lead mines, where access to the workings is frequently made along adits or day levels which also serve for the drainage of the mine, rubber boots have been in fairly regular use, though this is not so in collieries or mines worked by shafts. With the prolonged life afforded by the leather sole, which will not be ruined by a bit of granite or slate, there ought to be a greatly increased demand for rubber boots in mining, and although I have no personal knowledge of dredging work in Russia—a branch of mining largely on the increase—I should think that the new boot would be appreciated in that country.

MR. POTTS, in his book referred to in another paragraph, mentions chromium salts as being hurtful to rubber. I don't know whether this is based on any recent researches, but the statement seems somewhat surprising. Weber utters no warning to this effect, and W. Thomson in his paper of 1891 puts chromium among the metals having no action on rubber. For some years past yellow chromate of lead has been used by balloon fabric makers in connection with rubber, in order to neutralize the effect of the actinic rays. Certainly the chromate of lead has of late been superseded by organic dyes of the same tint, but I have no evidence that this change has been made because of any supposed injurious action of the chromate on the rubber. Moreover Schidrowitz, in a recent lecture in London, discussed the matter of mixing chromate of lead with the rubber to protect it from the effect of light, nothing being said as to any danger being apprehended. Thus it can hardly be said that this is a case where the doctors are found agreeing. With regard to the use of chromium compounds in the rubber manufacture, perhaps the best known body is chrome green, the oxide which has long been regularly used, though not to any large extent, owing to its high price. At one time green cut sheet, in which it is used, was more largely made than it is today. Other uses are green single texture proofings, where the price allows of it, and the green enameled surface of certain surgical and druggists' goods. Brunswick green, which is used as a substitute for chrome green in single texture proofings, etc., contains chromate of lead as one of its constituents.

TROUBLE OVER A MEXICAN PLANTATION.

On June 17 El Palmar Rubber Estates, Limited, of Glasgow, Scotland, filed suit in the Supreme Court of New York against the El Palmar Estates, a New York corporation to recover \$316,515. This sum is alleged to be due as the result of a fraudulent sale of a rubber, cotton and sugar cane plantation in Vera Cruz, Mexico.

The defendant corporation sold the plaintiff this plantation on March 6, 1910. At that time the plaintiff claims it paid £107,500 for the plantation under a contract guaranteeing that it included 172,999 rubber trees, 220,000 coffee bushes and 200 acres of sugar. Instead, it is alleged there are only 139,625 coffee bushes, 67,000 rubber trees and 100 acres of sugar.

SOME LONDON RUBBER NOTES.

By an Occasional Correspondent.

THE East Indies Crude Rubber Trading Co., of London, which has been treating jelutong on a small scale in London, marketing it in a purified and drier form, but without extracting the resin, has been seeking additional capital in order to carry out its process in the East upon more extensive lines. One of the directors visited Sumatra some months ago, and fixed upon Palembang as the location of a new factory. With the saving in cost of transport due to purification and drying, and the further saving resulting from the handling of larger quantities, it is intended to place the jelutong on the market at lower prices. The product is turned out in two forms, as imitation of plantation crêpe and of thick sheet.

Agitation by dissatisfied shareholders in the United Malaysian Rubber Co. has not yet led to a Board of Trade inquiry upon the circumstances surrounding the flotation. Formed two years ago to exploit a process for the extraction of resins from jelutong, turning out material as crêpe rubber, heavy losses have been incurred. These were in part due to the process not having been technically perfected at the time of its purchase by the company. Such a fact, along with others, has led to considerable resentment. But as American holders of big blocks of the shares are apparently content to await the development of the business in the East, the agitation is not receiving very strong support.

Some time ago the demand was for a pale plantation rubber, and experimentation was devoted to this end. As a result methods were found of insuring lightness in color, and the product met with a ready sale. But now one hears less of the color and more of the strength, so that manufacturers, as a whole, are readier in accepting a rubber though it should have been darkened in smoking. This has worked to the advantage of the plantation industry, for the use of alum as a bleaching agent, a most vicious practice, and one with disastrous effects on the rubber, was likely to increase. It should be noted that alum is also a coagulating agent for *Hevea* latex. Two, at least, of the proprietary coagulating powders contain alum; but this being a matter of common knowledge, estate managers cannot employ them without running the risk of censure, and boards of directors are not likely to allow any such departure from the ordinary acetic acid method. Yet alum, after all, is being used furtively, along with the acetic acid in order to improve the color. The excellent condition and quality of so much plantation rubber is testimony to the fact that very little of this sort of thing is carried on; but how widespread it really is one cannot learn.

There are very many rubber estates on the market in London, but none will buy. The public is satiated, and the commitments of insiders are already sufficient. By far the largest number of these estates are planted with additional cultures, such as tea, cacao, coffee and cocoanuts, and the Chinese ownership of some is marked by the presence of gambier or pepper. Ceylon is well represented, especially by mixed cultures; Malaya offers more estates with rubber alone; Java again is tendering mixed cultures largely; while Sumatra is marked by some young propositions; even Fiji is on the list. It is not surprising that many of these estates have been going begging for so long, seeing that multiplicity in kinds of crops, with no kind in very great quantity, leads to excessive cost of preparation. Naturally the cream of the estates changed hands in the boom time or before, but there are still available some respectable plantations. However, company promoters now have their attention directed toward cocoanuts as the stalking-horse.

I learn that a syndicate of Dutchmen, who sold their estates to English companies during the period of excitement two years ago, has been operating for some time in the purchase of the shares. In the particular cases these are at a heavy discount. The aim is ultimately to obtain control of the estates. It is notorious that investors in this country made some bad bargains with Dutchmen, especially when purchasing estates in Java; and shares of certain of the companies are almost or quite unsaleable, owing, on the one hand, to the low value of the estates, and on the other, to liability in respect of future calls on the shares. One hears now and then of large blocks of shares—even with 12s. 6d. paid out of £1—being handed over as a gift to others better able to meet the future liability.

Nothing further has been heard of a so-called synthetic rubber, emanating from Russia, that was some time ago brought to the notice of financial men in London. The sample shown was weak and tacky, though this might well be ascribed to retained solvent probably used to extract the rubber from, if one may say so, the partly altered crude material. An odor of carbon bisulphide was detected, but this very volatile solvent, had it been used alone, ought to have disappeared long before. Scattered through the rubber were particles with a conchoidal fracture and resembling resin. While the facts available allowed nothing more than speculation as to the origin of the material, there can be little doubt of its not being a synthetic rubber.

DESTRUCTION OF BALLOON FABRICS.

IN view of the suit of the North British Rubber Co. vs. E. T. Willows, reported in the June issue of THE INDIA RUBBER WORLD (page 441), interest attaches to the recent discussion by Dr. Fritz Frank, of Berlin, in the "Gummi-Zeitung," of the causes of the destruction of balloon covers through the formation of acids. In an earlier communication to an aviation journal, he had dealt with the subject from a more general standpoint, but in his present article he takes up the question from the point of view of the rubber manufacturer, dealing particularly with the formation of sulphuric acid in the fabric and the rubber covering, as well as the effects of the acid on both of them.

The formation of sulphuric acid or sulphuric acid salts in the process of vulcanizing rubber compounds is a known fact. With normal vulcanizing compounds the formation of sulphuric acid is not surprising, nor of necessity injurious to the covering, as there is a reaction between the metallic or earthy oxide and the sulphur, which produces indifferent sulphuric acid salts. It is different when such formation takes place at a later stage.

A factor of importance is the presence of copper in the rubber. The rubber tree may have absorbed it from the ground or it may have got into the latex during tapping. Although it can only be detected by the closest observation, its combination with the sulphur in the compound and the oxygen in the air produces an acid which quickly acts destructively upon the manufactured product. The latter falls apart like tinder, or becomes viscous. Decomposition has been noticed in regenerated rubber, which had been treated in copper vessels, the sulphur present forming sulphuric acid in quantity, which could not be neutralized by the oxidizing filling substances. The latter, being surrounded by rubber, are thus protected against decomposition beginning from the outside.

From the above considerations it is desirable to avoid the use on balloons of copper armatures or parts, with which there is the possibility of the covering being brought into contact. But if, as was recently authoritatively stated, certain Indian and Ceylon plantations use bronze rolls and copper sieves for the treatment of rubber, it is Dr. Frank's opinion that the greatest subsequent care will not prevent great damage to the manufactured product.

Iron may likewise give rise to brittleness in balloon cover-

ings. If there is a particle of iron in the rubber, which has been transformed into salt by the process of reaction, it gradually forms a small stain of weak reddish-brown tinge. The particles of salt which are formed are distributed in radiated form in the membrane of rubber, which becomes hard on the interior and often suddenly breaks. At the point of decomposition free sulphuric acid is always traceable. The presence of iron particles and oxides usually arises from accidental causes, having been traced chiefly to *Hevea* plantations unskillfully operated.

Another cause of the formation of sulphuric acid is the extensive surface which the balloon covering exposes to the aggressive influence of air in combination with light. In this connection, the compensatory action of the air towards the hydrogen in the balloon is of considerable importance. Whether in the action of air in combination with light, secondary sulphuric acid really leads to the destruction of the layer of rubber has not been exactly defined. On the other hand, certain indifferent substances, such as tar, asphalt, paraffin, etc., are used for the purpose of obviating the micro-porosity of rubber fabrics, and thus resisting the above-named influences, manifested by what is technically known as "sun-breaking."

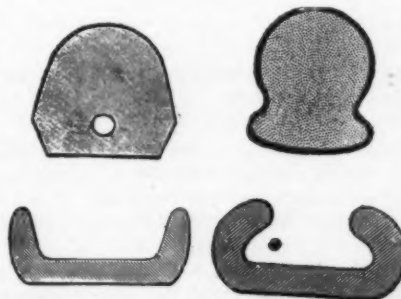
As to the theory that sulphuric acid is produced during the manufacture of the hydrogen gas, Dr. Frank rejects this assumption, adding that chemical science is in a position to manufacture gases which give rise to no complaint. He adds that it is far more likely that the presence of acid and its injurious effects arise from the previous treatment of the materials, in bleaching, dyeing, finishing, etc.; these processes leaving small residues of chlorides, sulphides, sulphates, etc., all of which exercise a certain amount of chemical action.

Generally speaking, good ventilation and cool temperature may delay the formation of acids or oxides in balloon fabrics when in storage.

TIRES FOR RICKSHAWS AND INVALID CARRIAGES.

The rickshaw has become quite an institution. There are over 40,000 of these convenient conveyances in use in Tokyo alone, and their use has spread so much outside the confines of Japan

that about 15,000 are exported from that country each year. The greater number of these rickshaws have solid rubber tires—90 per cent. of those in Tokyo are equipped in this way—and while some of these tires are made in Japan, two-thirds of them



are imported into that country from America and England. Here are some cuts showing two of the most popular English makes of solid tires for rickshaws and invalid carriages. One of these cuts shows a tire without wire that is held on by a clamp channel, the clamp channel showing underneath; while the other illustrates a tire held on by a central wire, the proper channel showing below.

Ernest Wallwork, an enterprising young man of 16, son of James Wallwork, proprietor of Thomas Rowley & Co., Manchester, England, has recently been visiting sundry points of interest in this country. He was particularly anxious to visit some of the representative American rubber mills, and found our manufacturers quite willing to let him inspect their plants.

RUBBER AND ITS SUBSTITUTES.

IN a review of the above subject, the "Zeitschrift für Angewandte Chemie" remarks that up to the present, there has only been discovered one really synthetic rubber—that obtained by the polymerization of isoprene. But, as it is added, the synthesis of isoprene itself presents great difficulties; a large number of patents having been taken out bearing upon this question.

One of the most interesting is that of the Farbenfabriken, Elberfeld, which company condenses formaldehyde with acetone, in the presence of weak alkalines. Starting from the carbinol thus produced, methylene-acetone can be obtained by separation of the water, and finally isoprene. A. Heinemann, on the other hand, is said to have arrived at the synthesis of isoprene by the reaction of ethylene, acetylene, and chloride of methyl. This invention is said to be in the hands of the Caoutchouc Syndicate.

Instead of starting from isoprene, other products can be used; particularly erythrene, amethyl-butadiene, and certain hydro-carburets. It seems to be particularly difficult to completely transform isoprene into rubber by polymerization, and to avoid the formation of terpenic products. Moreover, it is added, artificial rubber is always particularly difficult to vulcanize, the opinion being expressed that it is not upon the point of competing with natural rubber.

Besides, the production of the latter is constantly and largely increasing. In a few years, it is added, we can rely annually upon 76,000 tons wild rubber and 98,000 tons plantation rubber.

"Regeneration of rubber properly so-called has," it is remarked, "not yet been realized. In other words, it is impossible to eliminate the sulphur without destroying the molecule. At most the removal has been effected of the sulphur mechanically mixed, and of the filling substances employed. The 'regenerated' rubbers thus obtained are more and more used."

Reference is likewise made to "substitutes" produced by the vulcanization of fatty oils. Heating in conjunction with chloride of sulphur is said to yield white substitutes, while those of gray color are produced by sulphur at a higher temperature. These two products are composites obtained by a process of addition.

GERMAN MANUFACTURERS' VIEWS ON BUSINESS PROSPECTS.

A PART from the routine matters forming the order of the day, the recent congress of German Rubber Goods Manufacturers afforded an opportunity for the expression of their views on subjects of interest, from a manufacturing point of view.

In his opening presidential address, Kommerzienrat Louis Hoff dwelt on the fact that the position of the rubber industry is constantly becoming more difficult. Nevertheless, some factories have done well. The difficulty arises from the unsatisfactory prices at which goods are sold; the activity displayed, while necessitating overtime and night shifts, not being attended with profit. Improvement in the situation would only be attainable through co-operation and united action on the part of manufacturers. As Herr Hoff added:—

"Efforts hitherto made in this direction have failed. It would seem as if it were necessary for business to be still worse, for the question to be taken up anew, with a prospect of success."

Within the last ten years wages in the rubber industry had advanced by 33 1-3 to 40 per cent. Hence it was necessary to let the workers understand, that at present further advances were not to be looked for. Uniform conditions and rates of wages must be established; local associations of manufacturers

being in a better position than individual employers to carry out the desired end.

Prospects for the coming year he regarded as not being unfavorable; the crude rubber market being now more steady than before; the large importations of plantation rubber tending to prevent a recurrence of the surprises of recent years. Commenting upon the recent temporary upward movement in rubber, Herr Hoff urged that efforts should be made to bring the article again to its normal price of 4 shillings. In conclusion, he impressed on manufacturers the necessity of maintaining prices during the immediate future; letting their subsequent action be regulated by market conditions at the end of the year.

Herr H. Otto Traun, of Hamburg, dealt with the question of trading in rubber futures, calling attention to the fact that while the industry had at one time been opposed to trading in futures, that form of business had now been introduced in Antwerp and London. In the latter case this development had been encouraged by the prevailing speculation in rubber shares. Hamburg could not avoid following in the same path unless it was to take an inferior position as compared with other markets. Herr Hoff expressed his approval of the system of forward trading now in force in Hamburg, where a certain deposit has to be paid for the purpose of ensuring that the purchases are not merely speculative in character.

In the course of a general discussion of the question of selling prices, the opinion was expressed that minimum prices should be established, below which the makers will not sell. Expenses have risen enormously, in a proportion with which many firms cannot afford to keep pace. Such firms, it was urged, should content themselves with the trade of smaller customers, paying better prices than larger concerns.

A committee was appointed to investigate the question of introducing uniform terms of guarantee for rubber transmission belting. One of the most important results of the congress was the appointment of a committee for the classification of the industry into groups representing its principal branches. This step, it was considered, would facilitate the other measures proposed for the amelioration of existing conditions.

NEW USES FOR BALLOON FABRICS.

In view of the consumption of balloon fabrics being necessarily limited, German manufacturers in that line are said to be endeavoring to get them taken up, to replace other rubber products for various purposes. Efforts have been made to introduce these fabrics into the making-up industry, with the result that (according to the "Gummi-Zeitung") some of the houses in that line are now making mantles, hoods, etc., out of these materials. Balloon fabrics, it is further reported, are now being used as hospital sheetings.

Whether this new development is in the interest of the trade, is regarded as doubtful; the relatively lower prices of balloon fabrics being considered likely to affect the sale of rubber sheetings.

RUBBERED FABRICS FOR MAP FOUNDATIONS.

Air-charts mounted upon rubbered fabrics, are said to have been used for the first time at a recent German flying contest. Washable land maps and marine charts on a foundation of waxed cloth, or with a thin covering of celluloid, have been in use, but as the former easily crease and the latter do not roll up well, they have not proved durable.

In "rubbered air-charts," it is thought that a practicable substitute has been discovered. The air-charts hitherto used have had the disadvantage that the celluloid was easily soiled by dust and rain, which trouble is now obviated, while the pliability of the rubbered fabric on which the charts are mounted, facilitates their being rolled up and handled.

The German military authorities are said to be interested in these charts, which are in some cases made with thin layers of rubber on each side.

MACHINERY IN GERMAN RUBBER FACTORIES.

From a statistical return quoted in the "Gummi Zeitung" there was a marked increase of the average motive power of individual German rubber factories in 1907, compared with 1895, as shown by the following figures:

	Number of Factories.	Total Horsepower.	Average Horse- power per Factory.
1895.....	153	8,453	55
1907.....	252	23,347	93

In the United States, according to the statistics quoted in the May issue of THE INDIA RUBBER WORLD (page 374), the following has been the rate of development:

	Number of Factories.	Total Horsepower.	Average Horse- power per Factory.
1899.....	308	71,464	232
1904.....	285	87,956	309
1909.....	295	125,512	425

A comparison of the above figures shows the respective degree of the concentration and development of the rubber industries of the two countries.

USES OF RUBBER IN FACTORY LABORATORIES.

In a recent issue of the "Chemiker Zeitung," Herr F. Grossman deals with the most important rubber articles for factory laboratories. In the first place are tubes for water, acids, lyes, steam, alcohol, oils, gas, etc. Rubber being more or less pervious to gas, tubes with an internal coating of gelatine are preferred. There is a marked increase in such perviousness if the gas contains sulphuretted hydrogen. Rubber tubes can likewise be used as cooling—or heating—coils. Rubber tubes in separate pieces serve other laboratory purposes, such as the protection of glass tubes and burettes, as well as of chemical thermometers; for holding test-glasses, and likewise as a means of protecting electric wires against acids.

Besides tubes, rubber stoppers constitute an indispensable requisite. These stoppers are more or less conical in shape, being solid, or else with one or several cavities, or with other specialties of form. Rubber caps drawn over the openings of bottles, retorts, etc., serve as air-tight stoppers, and for protection against dust. Rubber receptacles are likewise used for holding gas with tube and shut-off faucet. Another serviceable laboratory adjunct is the rubber sponge, for taking up spilt liquids and cleaning laboratory tables.

In addition to soft rubber articles, those of hard rubber are by no means unimportant in laboratory practice; including hard rubber faucets, with one or more openings, replacing fragile glass faucets. Funnels, tubes, drying trays, pumps and other utensils of hard rubber are likewise seen. Besides these articles of general use, there are many special utensils for which rubber has been found suitable. Rubber mats are recommended as floor covering; in addition to rubber aprons, gloves, finger cots, as well as rubber garments, for the protection of workers against the effects of acids.

TECHNICAL USES OF RUBBER SEED OIL.

In reply to an inquiry, the "Gummi-Zeitung" remarks that although the efforts hitherto made to employ the oil from rubber seeds in the manufacture of soap and varnish, or as a lubricant, have proved unsuccessful, it is advisable still to seek for an opportunity of its technical utilization. Such a course, it is added, is all the more necessary, as with the development of rubber cultivation, there is a constantly larger quantity of seeds becoming available.

The color of this oil is greenish-yellow, and the odor like that of olive oil; being slow-drying at an ordinary temperature, while

drying more quickly at a higher temperature. These and other properties of this oil, have retarded its adoption for technical purposes, but further trials are recommended.

RUBBER SUBSTITUTES FROM A FRENCH STANDPOINT.

One of the results of the rubber boom was to stimulate the quest for an artificial or natural product, which, when added to rubber, would not affect either its qualities or properties, while effecting a notable saving in the manufacturing cost.

These various products, known as "rubber substitutes," are classified by French chemists into three descriptions—elaterite, oil rubber and vulcanized oils.

Elaterite is a true fossil rubber as to the origin of which opinions differ. Some scientists claim that it is the fossil latex of a real plant; others, on the contrary, attributing to it a mineral formation, resembling that of naphtha, petroleum, or ozokerite.

Oil rubber is obtained by chemically treating certain siccative oils with suitable acids.

It has been claimed that in the rubber industry, the rubber substitutes made from vulcanized oils have met with principal favor. Their use became more general from the time when it was discovered that by adding chloride of sulphur to a vegetable oil at an ordinary temperature, the oil almost immediately solidified and would even become very hard. The use of chloride of sulphur for vulcanizing was the next stage, easily reached.

Certain French chemists state that rubber substitutes have no property which would allow them to be compared with, or substituted for rubber. It is claimed that chemically they do not combine with it, but can always be detected and even separated from the rubber which they accompany.

RUBBER CORSETS.

Reports from Paris speak of the growing popularity of rubber corsets, as affording a welcome relief from the stiff, inflexible fabric garment. The principal object in view is to avoid as far as possible the disadvantages of the fabric corset, and to impart a graceful outline to the figure, without impeding its freedom of movement.

FRANCE AS AN OUTLET FOR AUTOMOBILES AND ACCESSORIES.

The Paris correspondent of the "Gummi-Zeitung" deduces from recent statistics that France has about reached the limit of its productive capacity as regards automobiles, and is obliged to import them in augmented proportion, although French manufacturers are protected by a high import duty.

Comparative figures of French imports of automobiles show that imports from England, Germany and the United States had largely increased in 1911 as compared with 1910. The increase in the last named case was from the equivalent of \$152,000 to \$479,600.

These figures, it is remarked, would indicate that France presents better prospects than at any previous time as an outlet for automobiles, and likewise for automobile accessories, including, of course, rubber tires.

RUBBER AT THE VIENNA INTERNATIONAL AVIATION EXPOSITION.

Prominent among the features of the recent Vienna Aviation Exposition were the exhibits of the rubber industry, notably those of the United Harburg-Wien Rubber Factories, and of the Austrian-American Rubber Factory. These exhibits were much appreciated, as illustrating the importance of rubber manufacturing to aviation. Of special interest were the models of various dirigible balloons shown by the first-named concern, and samples of balloon fabrics, displayed by the latter. Rubber clothing and various other accessories of aviation, were exhibited by both concerns.

Comparative Japanese Import Statistics.

STATISTICS deriving their value from their comparative features, it has been impossible to draw from the official records conclusions of a reliable character as to the effects of the new Japanese tariff, until its operation could be shown for a more or less extended period.

Such an opportunity is afforded by a comparison of the figures for the first five months of the new tariff which went into effect July 17, 1911, with those for the corresponding periods of 1909 and 1910. While not forming an official table, it has been found possible to construct that shown below by a compilation of the separate figures for the periods covered.

The broad fact deducible from this comparison is—that the value of Japanese imports of rubber manufactures for the five months, August to December, represented for the last three years—1909, \$791,727; 1910, \$1,222,598; 1911, \$556,939. Assuming that the figures of 1910 had been unduly swelled by the anticipated advance in duties, 1911 shows a falling off to the extent of one-third as compared with 1909:

MANUFACTURED RUBBER IMPORTS FROM AUGUST TO DECEMBER 31.

	1909.	1910.	1911.
Plates and sheets (soft and hard)	\$22,848	\$42,054	\$22,069
Tubes and rods (soft and hard)...	10,674	19,536	11,883
Other classes	19,480	22,681	43,385
Total group B.....	\$53,002	\$84,271	\$77,337
Engine packings	\$54,321	\$72,643	\$52,102
Hose and machine beltings.....	8,962	12,045	14,611
Total group C.....	\$63,283	\$84,688	\$66,713
Submarine and underground cables	\$51,977	\$439,532	\$14,669
All other insulated wire.....	443,769	435,747	310,323
Total group D.....	\$495,746	\$875,279	\$324,992
Rubber boots	\$5,600	\$5,595	\$17,122
Rubber shoes	7,664	3,992	10,679
Elastic boot webbings.....	19,938	24,302	12,091
Waterproof cloth	72,672	69,411	7,235
Elastic bands and cords.....	9,574	5,786	11,622
Air pillows	7,184	8,656	1,222
Quilts and cushions.....	7,490	6,407	3,838
Sundry manufactures of india-rubber and gutta percha.....	49,574	54,211	24,088
Total group E.....	\$179,696	\$178,360	\$87,897

SUMMARY.

	1909.	1910.	1911.
August 1 to December 31.			
Group B.....	\$53,002	\$84,271	\$77,337
" C.....	63,283	84,688	66,713
" D.....	495,746	875,279	324,992
" E.....	179,696	178,360	87,897
August 1 to December 31.....	791,727	1,222,598	556,939
January 1 to July 31.....	754,457	1,095,829	2,382,131

Totals for years.....\$1,546,184 \$2,318,427 \$2,939,070

The effect of the new tariff was thus to reduce the imports of rubber manufactures for the last five months of 1911 by about one-third as compared with 1909, and by more than half as against 1910.

When the returns up to July 31, 1912, are available, it will be

possible to make a comparison between full years of the new and old tariffs.

CRUDE RUBBER.

Japanese manufacturers have been importing more crude rubber, which more or less offsets the reduced imports of manufactures as shown by the following figures:

(Group A)	1909.	1910.	1911.
January 1 to July 31.....pounds.	794,876	817,901	1,158,463
August 1 to December 31.....	526,587	763,017	896,401

Totals for years..... 1,321,463 1,580,918 2,054,864

Crude rubber, being free under both tariffs, its movements are chiefly of interest as illustrating the direct effects of the new tariff upon imports of manufactures, by the consequent development of Japanese production. The imports of rubber, which for the 19 months ending July 31, 1910, had amounted to 2,139,364 pounds (or an average of about 112,600 pounds per month), represented for the ensuing 17 months to December 31, 1911, a quantity of 2,817,881 pounds, or an average of 165,760 pounds per month. Thus, in anticipation of the reduction of imports shown after the new tariff had gone into effect, the Japanese manufacturers had been importing free crude rubber on a scale of increase approximating 50 per cent. Figures of 1912 show for February, 58,152 pounds, and for March, 80,183 pounds, thus representing a reduced importation of crude rubber this year.

TOYO RUBBER COMPANY, LIMITED.

This company was established in 1900 with a capital of \$150,000, which was reduced by 1908 to \$75,000. Its motive power is furnished by one engine (100 h. p.), two boilers (each 100 h. p.), and a dynamo. The working staff numbers 92 hands of both sexes. That further extension is contemplated is shown by the



Y. YOSHIDA.

fact that while the area built on is only six-tenths of an acre, the property covers 2½ acres. The products of this company for 1911 represented \$143,000, including hose and tubes, insulated wire, sheets, belting, tires (cycle and jinrikisha), paper press rolls, etc.

N. Nagotomi is president, while Yutaro Yoshida is superintendent and manager. The experts are Mr. Kitoyama and B. Fujii, both graduates of the Tokyo Imperial University.

Some Rubber Planting Notes.

MALAYALAM RUBBER AND PRODUCE COMPANY (SOUTHERN INDIA).

THIS company, with 5,700 acres in rubber alone, and 1,336 acres interplanted with tea, produced 36,101 pounds in 1911, as against 12,555 pounds in 1910. The crop was virtually secured from 327 acres, the yield per acre being thus about 110 pounds. The f. o. b. cost was 1s. 3½d. per pound, and the net average price realized 4s. 8¼d. The estimate for 1912 is 117,500 pounds, the increased figure being partly due to the arrival of several plantations at a productive stage. The five months' drought seriously affected the 1911 result.

SCOTTISH MALAY RUBBER COMPANY, LIMITED.

The crop for 1911 amounted to 101,752 pounds from a total of 87,000 trees, the estimate for 1912 being 200,000 pounds from 100,000 trees, on 1,000 acres. Some of the trees have only recently become productive. The new iron factory has been erected and is in working order. Suction gas motive power has been supplied, as well as a complete installation of machinery, including a hot air system for drying the rubber.

BIKAM RUBBER ESTATE, LTD. (FEDERATED MALAY STATES).

The crop for 1911 amounted to 94,214 pounds, against an estimate of 100,000 pounds. The erection of the new factory was completed and the necessary machinery installed. A great improvement in quality of the rubber turned out has taken place, since the new factory started, about the end of last year. The dividend paid for 1911 was 12½ per cent.

RIVERSIDE (SELANGOR) RUBBER COMPANY, LTD.

Additional planted acreage reported by cable brings the present total up to 1,585 acres. Last year's crop was 64,610 pounds, against an estimate of 61,000 pounds. For the first four months of 1912 the quantity was 41,913 pounds, the estimate for the current year being 150,000 pounds or more.

TANJONG OLOK RUBBER PLANTATION, LIMITED. (FEDERATED MALAY STATES).

The area under cultivation, by the latest report, was 950 acres, of which 120 are newly planted. The yield for 1911 was 13,706¼ pounds, the limited character of the result being due to the combined effects of drought and wintering. The estimated output of dry rubber for 1912 is 55,000 pounds.

PATALING SCORES AGAIN.

The production of the Pataling Rubber Estates, which had been 323,065 pounds for the year 1910, and 333,044 pounds for 1911, reached for the first five months of 1912, the figure of 173,578; this result showing an increase at the rate of about 30 per cent. as compared with 1911. This company bids fair to excel for this year its record dividend of 250 per cent. for 1911, having announced a first interim dividend of 50 per cent.

RUBBER EXPORTS FROM THE STRAITS SETTLEMENTS.

A cablegram received by the Malay States Information Agency from the Colonial Secretary, Singapore, gives the export of rubber from Straits Settlements (as distinguished from Federated Malay States) ports during the month of April as 867,200 pounds, as compared with 956,933 pounds in March.

RUBBER EXPOSITION IN JAVA.

An International Rubber Exposition and Congress is announced to take place in April, 1914, at Batavia, Java. The project is being elaborated by the General Agricultural Syndicate of Java, in co-operation with the Dutch-Indian Government and under the honorary protectorate of the Governor-General. In view of the important position occupied by rubber in the commercial economy of the Netherland East Indies, much interest is

being there manifested in the project, in which the participation of Europe and America is anticipated.

MALAYSIA AT THE NEW YORK EXPOSITION.

A recent consular report states that the Federated Malay States have decided to be represented officially at the International Rubber Exposition to be held at New York, September 23 to October 3, 1912, and arrangements have been made to secure suitable space for exhibits. The section will be under the charge of Leonard Wray, I. S. O., late director of museums, Federated Malay States. No export duty will be charged on approved exhibits. The whole cost of the section will be guaranteed by the governments of the Federated Malay States and Straits Settlements, but it is hoped that contributions will also be received from associations.

According to Consular Report No. 8907 there is an American company owning two large rubber plantations in the Straits Settlements which desires to get in touch with crude rubber buyers in the United States.

EDUCATION ON MALAYAN RUBBER ESTATES.

The government of the Federated Malay States is bestirring itself in regard to the welfare of the children who accompany Tamil immigrants to Malaya. Believing that desirable immigrants are more likely to be attracted to the country if provision is made for the education of the children, the government suggests that the employers of Tamil labor should provide and maintain schools, the government undertaking the necessary supervision and rendering such assistance in the way of contributions to the cost of the schools as may be considered fair and reasonable. The matter was submitted to a recent meeting of the Planters' Association of Malaya at Kuala Lumpur, and Mr. Cruickshank, one of the planters, explained the system of night schools in operation in Ceylon. The chairman, Mr. E. B. Skinner, who is the planters' representative in the Federal Council, admitted the usefulness of having the children on estates taught the three R's in the vernacular. The association favored night schools, as already existing on several estates, and resolved that reading, writing and arithmetic be taught in Tamil, and that the estates should provide the teacher and building. This decision has been communicated to the F. M. S. Government.

LABOR IN THE MALAY PENINSULA.

This important question is dealt with as follows in the 1911 report of the Pahang Rubber Company, Limited:

"The biggest problem in Pahang is that of labor. There is no scarcity of labor in the Malay Peninsula, but it is merely a difficulty in collecting it. Owing to the rapid development of the rubber industry the demand for labor has been very great, and it is cheaper for some plantation managers to take on coolies who are willing to desert their estates that have paid their passages and given them advances that have not been repaid. It pays a manager to give deserters a higher wage than the standard because the costs of importation are saved. There is a strong feeling against these methods, however, and eventually conditions will have to be adjusted. The results of some of these undesirable methods is shown by the fact that one well-known estate had to recruit 1,200 coolies last year in order to increase their labor force by 200.

LONDON AND BRAZILIAN BANK INCREASES CAPITAL.

Owing to the increase of its business, the London and Brazilian Bank proposes to increase its capital by the equivalent of \$2,500,000, in 25,000 shares of £20 (\$100) each. Its headquarters are in London, and it has branches at Rio de Janeiro, Pará and Manáos, as well as other Brazilian points.

LEADING PLANTATION RETURNS FOR FIRST QUARTERS 1911 AND 1912.

	Acreage planted.	Output First Quarter 1911. pounds.	Output First Quarter 1912. pounds.
Anglo-Malay Rubber Company	M. 4,159	158,200	192,430
Bandarapola Ceylon Company	C. 2,523	13,510	26,340
Batu Caves Rubber Company	M. 1,400	52,220	75,550
Bukit Lintang Rubber Estates	M. 791	48,250	96,310
Consolidated Malay Rubber Estates	M. 4,775	73,430	96,360
Damansara (Selangor) Rubber Company	M. 2,051	87,370	126,290
Eastern Produce and Estates Company	C. 1,253	25,580	40,360
Edinburgh Rubber Estate (Selangor)	M. 1,150	26,350	38,400
Golden Hope Rubber Estates	M. 850	17,540	31,110
Harpenden (Selangor) Rubber Company	M. 1,134	54,020	69,310
Highlands & Lowlands Pará Rubber Company	M. 8,137	131,830	176,670
Kapar Pará Rubber Estates Company	M. 3,221	54,360	111,850
Klanang Produce Company	M. 1,428	31,230	42,990
Kuala Selangor Rubber Company	M. 1,470	19,180	65,860
Lanadron Rubber Estates	M. 1,538	42,460	58,740
Lang Kat Sumatic Rubber Company	S. 4,523	72,990	124,240
Ledbury Rubber Estates	M. 1,752	18,190	45,340
Linggi Plantations	M. 4,859	234,000	284,500
London Asiatic Rubber & Produce Company	M. 6,747	61,670	123,480
Panamatte Tea & Rubber Estates	C. 1,467	71,100	98,390
Pataling Rubber Estates Syndicate	M. 1,320	21,870	51,740
P. P. K. (Ceylon) Rubber Estates	C. 1,019	11,640	15,810
Riverside (Selangor) Rubber Company	M. 1,408	8,810	33,630
Sapumalkande Rubber Company	C. 810	11,020	21,640
Scottish Malay Rubber Co.	M. 2,214	61,040	90,130
Seafeld Rubber Co.	M. 1,403	14,400	26,090
Selangor Rubber Co.	M. 1,742	111,240	134,180
St. George Rubber Estates	C. 1,529	15,200	38,370
Sungei Kapar Rubber Company	M. 2,031	70,800	105,100
Sungei Way (Selangor) Rubber Company	M. 1,184	29,290	48,370
M=Malaya. C=Ceylon. S=Sumatra.	69,868 acres.	1,648,790 pounds.	2,489,580 pounds.

MOZAMBIQUE RUBBER CULTIVATION.

According to the report of Director of Agriculture Lyne, of Lourenço Marquez, in addition to other zones, there is in the Quilimane district of Portuguese East Africa, a distinct rubber zone, starting 50 miles from the coast and extending 75 miles towards the interior. The undulating surface is wooded, and watered by a number of rivers.

Three *Manihot* plantations, estimated to contain in all at least a million trees, are situated at different points.

On one plantation visited by the director there were 400,000 to 500,000 trees of which 90,000 were at a productive stage, being three and a half to four years old. Tappings are said to have produced a satisfactory yield, special reference being, moreover, made in the report to the healthy condition of the trees and the abundant flow of latex. The opinion is expressed that the prospects of rubber cultivation in the Quilimane district are decidedly favorable.

MEXICAN EXCURSION TO THE UNITED STATES.

Consul A. J. Lespinasse, of Frontera, Mexico, announces that an excursion has been planned under the auspices of the Chamber of Agriculture of Tabasco, to be composed of the leading business men and planters of that State, for the purpose of visiting the principal agricultural, commercial and industrial centers of the southern and southwestern sections of the United States. Efforts will be made to secure all possible data, relating to the most modern business and agricultural methods now in use.

Frank Evans, Esq., Agricultural Experiment Station, Department of Agriculture, Trinidad, has just been appointed superintendent of Agriculture in the Agricultural Department of Southern Nigeria and left Trinidad for England on June 11. He expects to leave London for Africa early in August.

SOME NEWS NOTES FROM MANAOS.

By a Resident Correspondent.

THE Commercial Association of this place is at present interested in plans for the Amazonas exhibit at the Rubber Exposition to be held in New York late in September. The president of Brazil has requested Governor Bittencourt to see that this State (Amazonas) is adequately represented at this exhibition. In compliance with this request the governor has asked the Commercial Association to take charge of the matter and has agreed to allow 30 tons of rubber to be shipped free of duty, thus guaranteeing the payment of necessary expenses in New York. Mr. Arthur Stedman, of the New York Commercial Co., has been suggested as representative of the association in New York; also Mr. J. Levy, of B. Levy & Co., of Manáos.

The fiscal agent of Matto Grosso in this place has telegraphed his government for permission to ship 15 tons of rubber free of duty also, for the Matto Grosso exhibit.

The Commercial Association has recently opened an exchange on the ground floor of the fine new building to which it has lately moved. Every afternoon the leading buyers, sellers and brokers will meet there between three and five o'clock to discuss any questions of general interest which may arise.

The Madeira Mamoré Railway has just been completed. The official inauguration of the line will take place in July. R. H. May, head of the contractors who have built the railway, returned from Europe this week. This railway will undoubtedly give a great impetus to the production of rubber and cauchó in Matto Grosso and Bolivia.

The crop of Brazil nuts has been unusually large this year. It is estimated that it will reach 14,000 tons by the end of the season. The prices paid have been good in spite of large receipts.

W. Scholz, who left Manáos last autumn, has joined Ahlers & Co., of Manáos, and is in charge of their rubber buying.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

WHILE it is still premature to say positively that the drought is at an end, there has been a welcome break in the weather which has been very acceptable. At the time of writing the rainfall returns for May are not available, but they will assuredly exceed those for April, which was a wet month by comparison with the other months of 1912. Nevertheless, the smallest sign of a break in the weather has been sufficient to encourage the Balata companies, and expeditions are now being got ready to send into the interior without delay, in order to make as much of the season as possible. The majority of the bleeders also are not sorry that their enforced idleness has come to an end. Some of the companies here have been financing the bleeders, and some have not, but the desire to resume work is fairly unanimous. The season, however, is not being entered upon without the inevitable disputes, and many companies have had trouble with their men, who have been described by one gentleman interested in the industry as "bullying and mutinous."

THE AMSTERDAM BALATA COMPANY HAS HAD TROUBLE WITH ITS LABORERS.

A contingent of 100 was contracted for, for the King William Falls district, Essequibo River, in January last, but for obvious reasons the company could not send the men away. It would not have been to the interest of the men to go, because no latex can be obtained in dry weather. Consequently a fresh contract was entered into and still the weather was unfavorable. Eventually it was decided to make a start, but the men wanted fresh advances and larger advances, store orders, "doctor shop" orders, and what not. The company seems to be regarded as a milch cow by the laborer. This labor problem is going to do the industry a lot of harm unless it is speedily solved.

THE BALATA COMMITTEE—EVIDENCE OF THE COMMISSION OF LAND OWNERS.

The Balata committee is likely to offer the solution soon. The evidence of the Commissioner of Lands and Mines (Mr. Frank Fowler) has been taken, a memorandum by Mr. R. O. H. Spence (assistant commissioner of lands and mines) has been published, and Mr. A. F. White, manager of the Consolidated Rubber and Balata Estates, has appeared before the committee. This is to be all the evidence that is to be taken and the committee is now considering its report. In his memorandum Mr. Spence stated, in reply to specific inquiries, that there are six land officers in the bush having duties with regard to Balata concessions or Balata bleeding. They are stationed at Morawhanna, North West District; Marlborough, Pomeroon District; Look Out, Essequibo River District; Dadanawa, Rupununi District; Christianburg, Demerara River District; Springlands, Corentyne District. There are five forest rangers stationed in the North West District, Lower Essequibo River District, Demerara River District, Canje Creek, and Berbice River District. These forest rangers, says Mr. Spence, visit and inspect Balata tracts as part of their official duties. There are also six gold officers in the interior. Mr. Spence says he thinks that, provided the necessary legislation is passed, and the staff increased, these officers might perform functions in connection with the Balata industry. He considers the increased staff required would be—five fourth-class officers, boat crews for four; rations, personal allowances, houses, tent-boats, involving a total cost for the first year of \$21,760, and an ultimate annual cost of \$17,070. This expense, he thinks, should be borne by the industry, as it would be incurred primarily for the benefit of the owners. He suggests that the registration of laborers should be undertaken by the department, as was done up to January 1, 1910, when under the Employees' and Laborers' Ordinance, No. 26 of 1909, it was transferred to the Institute of Mines and Forests. He suggests a fee of one shilling for each

registration certificate, and that they should be issued for twelve months, the revenue derived meeting the expense incurred. He does not view favorably the suggestion that the department should contract the laborers, or prosecute them for breach, "as matters can be more satisfactorily carried out by the Institute of Mines and Forests, provided the necessary legislation is enacted to define the duties and powers of the Institute, and to make provisions for the efficient carrying out of these duties, both on behalf of the laborers as well as the employers."

Mr. Fowler, in his evidence, said he agreed with Mr. Spence. Registration by the department would have a better effect on the men, absconding not being so rampant when the Government did the work. The men did not regard the Institute as in any way under Government control, and he opposed the transfer unsuccessfully when it was made. The appointment of a Government chairman by the Institute would not be sufficient. The Government should take over the Institute's duties or leave it alone, i. e., unless they confine their interference to registration alone. He suggested the formation of a Labor Bureau as part of his department. Registration would not entail increased expenditure, but if contracting as well were undertaken it would. He believed it would be a good thing to have the registration and contracting done by the same body and at one time. He agreed with the appointment of new wardens, and thought the expense might be reduced a little. He saw no difficulty in ear-marking revenue derived from the industry for the benefit of the industry.

THE INSTITUTE OF MINES AND FORESTS—ITS RELATIONS WITH THE NEW COMPANIES.

The suggestion that the work of registration, or contracting, or both, should be withdrawn from the Institute and taken over by the Government has provoked some criticism of the former body, in response to which Mr. James Winter, the secretary, has published a draft agreement, which he drew up for the benefit of the industry. He said that this was signed by all the old employers of Balata bleeders, including Mr. A. P. Bugle, for M. Bugle & Co., and as agents for Messrs. Thom & Cameron; Garnett & Co.; Joseph M. Ho-á-Hing; Evan Wong; H. L. Rongeyron, by his attorney C. A. Cunha; Ernest Farnum; Veerasawmy; Clement P. Gaskin; W. A. Douglas, for S. Davison & Company, Limited; and others, but that the new companies upset the labor market and the agreement became a dead letter. The agreement was as follows: "We, the undersigned employers of Balata bleeders hereby agree to the following eight resolutions passed unanimously at a meeting of a committee on the Balata industry and undertake to adhere to the same, and assist in every way to have them carried out: Resolution 1—That the cash advances to bleeders shall not exceed \$5 each for places below the falls, and not exceed \$10 each above the falls. Resolution 2—That the advance in medicine and goods in town shall not exceed \$6 per man for places below the falls, and not exceed \$12 per man for places above the falls. Resolution 3—That the price of provisions supplied on grants be inserted in contract, and in cases where provisions are supplied at place of departure, the price shall be agreed on and also be inserted in contract. Resolution 4—That all employes of grant holders be contracted through the Institute. Resolution 5—That all employers shall furnish the Institute with reports of any employe who is inefficient or misconducts himself. Resolution 6—That notice of men absconding shall be supplied promptly by employers to the Institute, and the Institute shall furnish a quarterly list of such abscondings to each employer. Resolution 7—That no employer shall employ any absconder, but in the event of doing so, shall, on discovery of the fact, at once give notice to the Institute and to the employer, from whose service the absconder has deserted, and shall accept the arbitration of the Institute in the adjustment of claim between him and the first employer. Resolution

8—That the terms herein agreed to, be embodied in a form of agreement and be signed by all employers undertaking to conform strictly to the terms and enforce the conditions laid down.

On behalf of the new companies Mr. Henry Daley, secretary of B. G. Balata Association, and manager of the Essequibo Rubber and Tobacco Estates, Limited, made the following reply: This agreement was shown to him during the sittings of the Balata Committee. This was the first he had seen of it, and he would be much surprised if any of the new companies' representatives had even heard of it before. Mr. Daley stated emphatically that from the beginning the Balata Association wished to work hand in hand with the Institute, and did all in its power towards this end. He further remarked: "Whatever the policy of the new Balata companies has been, they have all along tried to work with the Institute. This is clearly shown by the evidence of the Balata Committee meetings, Mr. Joseph A. King, who represented the companies in the Balata Association, leaving all questions directly affecting the working of the Institute severely alone." Asked whether he was in favor of the Institute remaining in existence, Mr. Daley said: "If the Institute could be granted fuller powers, and with certain alterations in its regulations, it would be a pity to make any change. The Institute has records and experience that will take another or new department considerable time to acquire, and from some of the last witnesses of the Balata Commission a change is likely to cost the Balata companies considerable money. For the benefits to be derived, I certainly don't think it is worth it. Let the different industries (particularly the Balata interests) be properly represented on the council of the Institute and there will be no further need of the Balata Association."

FURTHER BRITISH GUIANA NOTES.

AN UNKNOWN HOLIDAY GROUND.

ON June 5 Miss Edith Browne, the authoress (whose name is familiar to the readers of THE INDIA RUBBER WORLD), who had arrived in the colony some weeks before, delivered an interesting lecture on the above subject in the rooms of the Royal Agricultural and Commercial Society at Georgetown. During her visits, at different times, she had evidently grasped the situation of local matters, as her lecture was replete with comments and suggestions, in line with her previous work in England in writing up British Guiana.

Touching the work of the Permanent Exhibitions Committee, which it had been stated was borne practically by Professor Harrison and Mr. Stockdale, and for the furtherance of which co-operation was solicited, she observed that from what she had seen of the colony's representation at the Rubber Exhibition in London she did not think these gentlemen needed any help. Passing on to the subject of her discourse, Miss Browne said there were several people in the audience who knew a great deal more about the colony than she did, but at the same time there were in Georgetown a very great number who did not know nearly as much about the colony as she did, much to their shame. They had, however, to do something to make the fact of the colony being an ideal holiday ground known. Other countries that wanted to come to the fore as playing fields had spent an enormous amount of money in advertising.

Miss Browne likewise urged the development of British Guiana. In the development of the colony, as far as she could judge, there were three problems. Those bones of contention were capital, labor and transport.

In supporting a vote of thanks to Miss Browne, Mr. Justice Earnshaw said that if the colony could be called by one name, instead of British Guiana and Demerara, it would be of considerable use and a committee should be formed with a view to proclaiming the virtues of the colony as a health and holiday resort and settling on the name by which it should be known abroad.

An attempt was being made through the energy of Sprotons,

Limited, with the assistance of Miss Browne and Mr. Colcutt to erect a hotel. Mr. Colcutt, a London architect, is now visiting the colony for the purpose of investigating the situation and prospects.

THE BALATA SITUATION.

According to the most recent statistics available, British Guiana exports of balata this year, from January 1 to June 6, had been only 25,557 pounds, as compared with 136,006 pounds during the corresponding period of 1911. The United Kingdom took about 55 per cent. of the quantity and the United States about 45 per cent.

The advent of the rains has been a blessing in many directions. It has had the effect of causing a brightening generally in trade in Georgetown, and the stores after the long spell of trade depression, caused by the drought, are busier through the industrial activity that the rains have brought. Especially is this the case with the balata industry, the activity of which is perhaps greatest, seeing that the drought had caused more of a dead stop in these operations than perhaps in any other direction. The great exodus to the balata bush which took place during the last fortnight of May has meant good business for traders that cater especially for the balata bleeder and his multifarious wants.

The first piece of balata of the season was brought to town on the 16th of May. It was for the Consolidated Rubber & Balata Estates, Ltd., and came from grants on the Demerara River. The balata was of a beautiful amber color and of splendid quality.

Mr. Coupain (a collector for the Balata Company Surinam), has just returned from the Gonini and Tappanahy rivers. Mr. Coupain is quite sanguine that although the dividends this year will be nothing near as high as what they were last year, still, he adds, the forecast of the industry is sufficiently reassuring. He says that all the trees are now in fit condition for operations, and that it is only a matter of a little more time spent on the grants to make things square. This is rather encouraging.

BRITISH GUIANA AND THE NEW YORK EXPOSITION.

Efforts have been made to induce the Permanent Exhibitions Committee to reconsider its decision for the colony not to take part in the New York Exhibition. Strong resolutions on the subject have been adopted by the Georgetown Chamber of Commerce and by the Royal Agricultural and Commercial Society. In communicating the resolution to the Exhibitions Committee, the Secretary of the Chamber of Commerce added: "Opportunities for advertising the colony and its products are so few that the Council think it would be missing one of the greatest, if this colony made no show at all on the tables of the New York Exhibition."

TRINIDAD NOTES.

Consul Franklin D. Hale, of Port of Spain, Trinidad, advises that he expects to arrive in New York on July 17, on a leave of absence for 30 days. He will be in New York for two days, and may be addressed by business men at the Grand Union Hotel; thence proceeding to Washington for two days. During the remainder of his leave, his address will be Lunenburg, Vermont.

In anticipation of his visit he has written an official report on "How to Increase American Trade with Trinidad," which appears in No. 140 of the Daily Consular and Trade Reports. He remarks that while many of the larger mercantile firms doing business with America make their purchases through New York commission houses, he feels assured that commercial travelers personally representing goods in the island, would effect much larger sales in numerous lines.

Railway extension is making satisfactory progress; the iron-work for the bridges on the Siparia and Rio Clara lines having been contracted for in England. The local government has ordered from England a new 14½-knot coasting steamer for use in connection with the railway at San Fernando.

"HEVEA" AND "CASTILLOA" IN HONDURAS.

PLANTATION BOCA VIEJO, Honduras, has recently taken on a new lease of life and is going ahead rapidly in planting *Hevea* and *Castilloa*. The operating company was organized in 1908 and the following year planted some 40 acres which the



MANAGER'S AND ASSISTANT MANAGER'S HOUSE ON THE BOCA VIEJO AND A VIEW OF THE LARGER PLANTED "CASTILLOA."

native *capitans* allowed to run out. A year later another effort was made and about 6,000 stumps taken from the nursery and set out. All this was done privately by three gentlemen, residents of the State of Washington—C. F. Armond, Dr. George A. Gray and E. Wilson Farr.

Quite recently the company has secured a grant from the government of Honduras for 2,100 acres of land, which they are planting in *Hevea* and *Castilloa*, with windbreaks of cocoanut palms. The combination of *Hevea* and *Castilloa* would seem to be one very practical solution for planting throughout Central America, and those who keep in touch with plantations in the section named will observe that more and more *Hevea* is being taken on with excellent results.



"HEVEA" IN THE NURSERY BEDS—9 MONTHS OLD—BOCA VIEJO PLANTATION.

It is said to be shown by the experience of Americans who have acquired plantations in Honduras that rubber trees in that country begin to yield in four years.

CENTRAL AMERICAN RUBBER CO.

The plantation of the Central American Rubber Co., in Honduras, is reported to have 120,000 young trees ready for transplanting next spring. The plantation includes a number of trees old enough to be tapped. The production from these trees amounted to 575 pounds last year, which sold at \$1.15 per pound.



"CASTILLOA" STUMPS IN PARTIAL SHADE, BOCA VIEJO PLANTATION.

The stockholders of this company are chiefly residents of Spokane and Tacoma.

* * *

The course of rubber culture in Honduras is illustrated by the United States imports of crude rubber from that country.

	Pounds.	Value.
1906.....	93,126	\$55,709
1907.....	104,334	76,444
1908.....	102,010	65,865
1909.....	76,133	39,985
1910.....	148,813	117,808
1911.....	88,748	80,660



"HEVEA" ON THE BOCA VIEJO PLANTATION—14 MONTHS OLD.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The Editor's Book Table.

RUBBER AND GUTTA PERCHA. REPORT NO. 82 FROM SCIENTIFIC and Technical Department, Imperial Institute, London, 1912. Part IV—Rubber and Gutta Percha. [Paper. 8vo. 448 pages.]

THE value of a comparison depending upon its general standard, special interest attaches to the recently published selected reports of the Scientific and Technical Department of the Imperial Institute, edited by the director, Mr. Wyndham R. Dunstan. Based on the principle that rubbers of all descriptions have practically the same components in varying proportions, a series of analyses defines the composition of a number of samples analyzed by Mr. Harold Brown, Dr. S. S. Pickles, and other members of the staff.

Uniformity of result has been insured by the form of the analyses, which show the composition under two heads, applied to "Rubber as received," and "Dry rubber." The elimination of moisture in the latter case naturally increases the proportion of caoutchouc, while also slightly altering that of the other constituents. The general form of analysis may be illustrated by the following example:

CEARA RUBBER FROM KIBOS DISTRICT, EAST AFRICA PROTECTORATE (p. 291).

	Rubber as received Per Cent.	Composition of dry rubber, Per Cent.
Moisture	12.4	...
Caoutchouc	58.9	67.2
Resin	10.5	12.0
Proteid	12.1	13.8
Insoluble matter.....	6.1	7.0
Ash	2.4	2.8

This form of analysis is applied with varying results to the following rubbers:

Pará rubber (<i>Hevea brasiliensis</i>).....	45 analyses.
Sapium rubber (<i>Sapium Jenmani</i>).....	3 "
Ceara rubber (<i>Manihot Glaziovii</i>).....	19 "
Castillo Rubber (<i>Castilloa elastica</i>).....	18 "
Funtumia rubber (<i>Funtumia elastica</i>).....	36 "
Ficus rubber (4 varieties).....	25 "
Mascarenhasia rubber (<i>Mascarenhasia elastica</i>)..	4 "
Miscellaneous rubbers	13 "
Vine rubbers (African, Asiatic and West Indian)..	60 "
Gutta Percha and Balata	25 "
Total	248 analyses.

While scientifically accurate results are defined by the analytical tables, their presentation is so clear that they are equally available to the non-technical reader.

Regarding each species of rubber, a concise summary of its botanical and geographical features precedes the tables of analytical results, while an appendix deals with the utilization of the seeds of the Pará rubber tree.

Within the compass of this brief notice it is impossible to do more than call attention to the salient features of this valuable and interesting compilation.

Extending as they do over a period of seven or eight years, these tables have, in the completeness of their form, a value which they would not have had in the fragmentary shape of separate publication. Mr. Dunstan and his colleagues are to be distinctly congratulated on this result of their labors in the cause of technical research.

THE CEYLON HANDBOOK AND DIRECTORY AND COMPENDIUM of Useful Information. Compiled, prepared and edited under direction of J. Ferguson, C. M. G., Colombo. A. M. & J. Ferguson, 1912. [Cloth. Pp. LXXI + 1668.]

Distinctly in advance of its predecessors, the "Ceylon Handbook and Directory," while a little later than usual in its appearance (chiefly owing to the alteration in the date of the government financial year), affords increased information in the form of an extra hundred pages of text. While dealing fully with the other branches of the Ceylon planting industry, it gives rubber its appropriate position of prominence. From the statistical table forming a special feature of the work, it is seen that rubber alone represents 161,792 acres, as compared with 349,135 acres in tea alone. While of more recent development than tea, rubber is thus catching up with the latter; more particularly when it is considered that further areas are planted in rubber with tea, of 77,093 acres; and in rubber with cacao, of 19,493 acres. Thus there is a gross total of 258,378 acres in which rubber is represented, which, after allowance being made for other interplanted crops, is estimated to equal about 215,000 acres in rubber. There is in the work a remarkable abundance of local information, so that any one in any way connected with Ceylon and its various interests will find in it much valuable and distinctly up-to-date information, evidently gathered and compiled by painstaking efforts. Messrs. Maclaren & Sons, Ltd., 37-38 Shoe Lane, London, are in a position to supply copies of the Handbook.

RUBBER PRODUCING COMPANIES (CAPITALIZED IN STERLING). Compiled by Gow, Wilson & Stanton, London. Published by "The Financial Times," London, 1912. [8vo. 608 pages. Cloth. Price, three shillings.]

More or less differing in arrangement from other works of its class, this volume shows in separate sections, 319 companies situated in the Malay States, Java, etc.; 121 companies in India, Ceylon, etc., 79 companies in other parts of the world, and 29 rubber financial and trust companies. This arrangement facilitates reference in a general sense to broad divisions of rubber cultivation, while the details of acreage, production, etc., are latest available at time of publication. That this is the sixth annual edition, bears testimony to the general appreciation of the work.

One interesting fact is given prominence, bearing upon the cultivation of plantation rubber; the production of which in 1910 was less than one-tenth of the world's supply, but during 1911 reached nearly a sixth. It is estimated that during the present year the supply may exceed one-fourth of the world's total. While rubber receipts at Pará have been almost stationary since 1906. The annual quantity of plantation rubber auctioned in London has increased during that time from 348½ tons to 9,699 tons.

The work is well printed in bold type and will prove of general interest to the rubber trade.

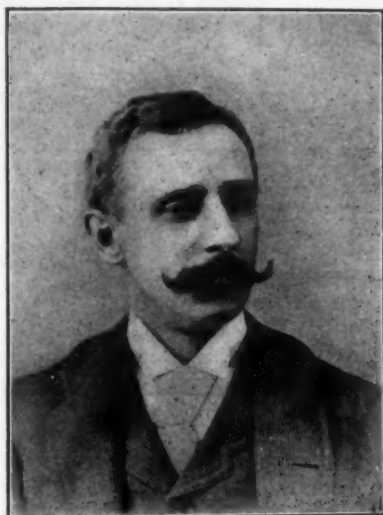
EUROPEAN BALLOON AND AEROPLANE FABRICS.

E. J. Willis & Co., New York, had an interesting display, at the recent Aeronautical Exhibition, of the balloon and aeroplane fabrics made by Metzeler & Co., Munich, Germany. This is one of the oldest companies making fabrics of this character in existence. It was doing quite a little in this sort of work 20 years ago, before aviation in its present advanced estate was dreamed of. Many of the famous dirigible balloons that have been operated so successfully in Europe were made of its fabrics. The New York representative is the Theo. H. Gary Co.

THE OBITUARY RECORD.

S. LEWIS GILLETTE.

S. LEWIS GILLETTE, for many years manager of the clothing department of the American Rubber Co., died at his home at Riverbank Court, Cambridge, Massachusetts, on June 19, in his sixty-third year. He was born in Colchester, Connecticut, but came to Boston at the age of 18, and entered the employ of the



S. LEWIS GILLETTE.

C. M. Clapp Co., jobbers in rubber goods; remaining with that house for fifteen years until the formation of the American Rubber Co., in 1882, when he joined that corporation and assumed charge of its clothing department. He remained in this position up to four years ago, when he was obliged to retire because of failing health. He was continuously in the rubber trade for forty-one years. He was widely known in a social way in Boston, being a member of the Algonquin, Corinthian Yacht, Chestnut Hill, Wollaston, and Padisco Golf clubs. His funeral was held at Waterman's Chapel, Roxbury, on the afternoon of Thursday, June 20, and he was buried at his old home in Colchester, Connecticut, the following day.

Mr. Gillette was one of old time New England rubber men. Although he served his apprenticeship under C. M. Clapp, and later was associated for years with R. D. Evans, he had none of the marked characteristics of either man. He was quiet, unassuming and retiring. Methodical, conscientious, conservative, he was yet possessed of energy and strong common sense. He made few close friends, and no enemies. The trade had seen but little of him for the past few years as he was a real though uncomplaining invalid.

CHARLES H. BISHOP.

Charles H. Bishop, who since the first of January, 1904, had been connected with the Hodgman Rubber Co., New York, as a salesman, for a number of years past being their representative in the South and Southeast, died June 6 at his home, 227 Brooklyn avenue, Brooklyn.

Mr. Bishop was born in Brooklyn 50 years ago. He had been associated with the rubber trade for 28 years. In 1884 he became connected with the Metropolitan Rubber Co., New York. A few years later he went into business for himself in connection with two others and formed the Sterling Rubber Co. He later became associated with the Crescent Rubber Co., where he remained for 8 years—up to the time of his joining the Hodgman company.

He was taken ill with a hemorrhage of the stomach while in Memphis, Tennessee, on March 22. As soon as it was practicable, he was moved to his home in Brooklyn and appeared to be regaining his health, but the sudden recurrence of his trouble terminated fatally. He leaves a widow and a son, Charles H. Bishop. The funeral was held at his home on Sunday, June 9, and the burial took place in the Cypress Hills Cemetery.

NEW TRADE PUBLICATIONS.

THE Mechanical Rubber Co. (Chicago Rubber Works), Chicago, Illinois, has issued a forty-page catalog devoted to plumbers' rubber specialties. This booklet illustrates and describes a great variety of plumbers' supplies in the line of stoppers, tank balls, washers, packers, cushions, gaskets, bumpers, drain boards, mats and tubing. The catalog is indexed for quick and easy reference.

"The Inventors' Outlook" is a new monthly magazine, the May number being its first issue, intended, as its name implies, for the special benefit of the inventor. It will cover both domestic and foreign matters of interest to inventors and others concerned in the general progress of the arts and sciences. There will be a department in which court and patent decisions will be reviewed and hearings on the Oldfield Bill for the revision of the patent laws will be fully discussed. The editor and founder is Joseph J. O'Brien, author of "The Inventions of Edison," "The Department of Public Works," and several other books. The initial number contains an interesting paper entitled "What Edison Thinks About the Patent System," being his answer to a number of leading questions propounded by the editor. It is published in Washington, D. C.

A BANIGAN BANNER AND A CANDEE CARD.

The art mills of the United States Rubber Co. have been very industrious of late. Early in June the company sent out a banner advertising the Banigan brand of rubbers. It is a handsome piece of lithography, 20 x 30 ins. in size, printed in at least ten colors—possibly more—and shows old Silas Green of Andover on his way home from town in his one-horse sleigh. He has obviously been making some purchases. Just back of the seat is a large can full of oil; close beside him on the seat is a large jug—contents unknown—and in the back of the sleigh and forming the most conspicuous part of the picture, is a case of Banigan rubbers, indicating that Mr. Green is wiser than his name implies and gets Banigan rubbers in quantity, for himself and all his family, and possibly for the neighbors. Some rude boys are snowballing the old gentleman, which serves to add life and interest to the picture—if not serenity to his feelings. It is a fine country winter scene, and makes an attractive picture for wall or window.

Closely following the Banigan banner The United States Rubber Co. issued a card advertising the Candee brand of footwear. This is of a totally different character from the style of art described above. It is a card about 14 x 21 inches in size, printed in four or five colors, showing a quiet ocean scene with some sail boats in the distance, and in the immediate foreground a wonderful pickaninny submerged to his neck. His head, which is about half life-size is set off with a delicate fringe of wool over a lofty forehead, and further embellished with eyes that show a great deal of white and a mouth made conspicuous by a strong set of glistening teeth. Nothing more is seen of this young person except three toes of his right foot which emerge just far enough above the water to enable him to balance a well proportioned storm slipper on his great toe. Above the head are the two words "Candee Rubbers" and in the lower corner the Candee trade mark. It can hardly be called a thing of beauty, but it certainly is a striking advertisement and cannot well avoid attracting attention.

New Rubber Goods in the Market.

AN OIL-RESISTING RED TREAD TIRE.

EVERYBODY knows that oil has a most deleterious effect on rubber. That is a too well known fact to people who have to use tires over oiled roads. In these days of automobiling a very considerable percentage of the roads are oiled.

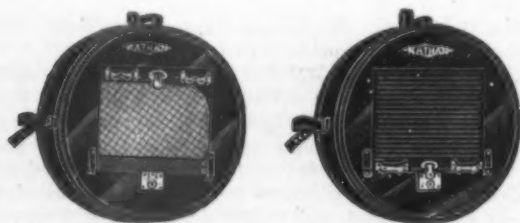


THE RED TREAD VACUUM-CUP BICYCLE TIRE.

About a year ago the Pennsylvania Rubber Co., produced a vacuum cup tread tire of the ordinary gray rubber color. These vacuum-cups were intended to make the tire non-skidding, on the principle that when these cups were compressed against the surface of the road a certain suction was produced that kept the tire from slipping sidewise. This company has now brought out another vacuum-cup tread tire, but instead of making it of gray rubber the tread is made of red rubber. The ingredient in the composition which gives the red color was put there, not primarily for that purpose, but in order to resist the action of oil, and to the extent that this new composition is oil-resisting it of course increases the durability and satisfactory service of the tire. [Pennsylvania Rubber Co., Jeannette, Pennsylvania.]

WATERPROOF TIRE TRUNKS.

In these days of extensive motoring when almost everyone who owns a car converts it at times into a touring car and goes on long trips from one city to another, every available inch of space in the car that can be used for baggage has to be utilized. With this idea in mind, certain manufacturers have put out circular packing cases to fit into the extra tires that have to be carried on any considerable journey.



ROLL-DOOR TIRE TRUNKS.

The accompanying cuts show two styles of the "Roll-Door Tire Trunk," made for this purpose. It is light and thin, but strong and thoroughly waterproof, being made of three-ply wood veneer, covered with a waterproof duck, bound with leather. The door is constructed with a catch lock, so that it rolls back at a touch. It is an exceedingly serviceable motor trunk. [Nathan Novelty Manufacturing Co., 84 Reade street, New York.]

A BASE-BALL CURVE PRODUCER.

For the last 25 years every healthy, red-blooded, patriotic American boy has had just one ambition—to pitch a curved ball. Some have been able to attain to this ambition after more or less painstaking effort, and some have not. But all can take



RUBBER BASEBALL CURVER.

heart now, for here is a device for assisting the fingers of the pitcher's hand to give the ball a curve. It is quite a simple device, consisting of a rubber band, about an inch wide, which goes over two fingers of the hand. Attached to this band, on the side that comes next to the ball, is a rubber vacuum cup. The theory is that when

the ball leaves the hand, the vacuum cup clings for an instant to the ball and gives it a decided twist as it starts on its way for the home plate. Just whether "Christy" Matthewson and "Rube" Marquard will find this appliance of any material assistance cannot at present be definitely stated; but without question it will appeal to a great many thousand boys who, during the summer months, will spend all their afternoons on the village diamond. [Patentee, Ralph Wilson Jones, Lincoln, Nebraska.]

VACUUM BASKET-BALL SOLES.

RUBBER molded goods of the vacuum-cup description have been made for some time, particularly in the line of toilet brushes and horse brushes. More recently soles for shoes to be used in ath-



VACUUM-CUP SHOE SOLES.

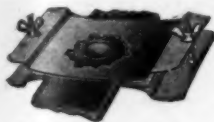
letics have been made of this pattern; and now comes a sole particularly designed for the basket ball player. It is made by the same company that has been putting out the vacuum-cup brush and other molded goods mentioned above. The game of basket ball is particularly hard on the player's feet, as it is an indoor

sport and usually played on hard floors. This suction-cup sole is designed to give the player the maximum comfort and immunity from sliding. When in his wild dives and rushes across the floor he lands on the soles of his feet, he strikes on the edges of the raised cups which are immediately flattened, so that the

hard wear really comes—not on these cup rims—but on the wide reinforced edge of the shoe. When the shoe is lifted from the floor just enough suction is formed by the vacuum-cup to keep the wearer from sliding. The manufacturers make not only the soles all in one piece, but also make soles and heels separate, which are sold to the manufacturers of sporting shoes. [The Flexible Rubber Goods Co., Salisbury, Connecticut.]

THE "HOCO" TIRE PATCH CLAMP.

Among some of the new contrivances for mending tires is one called the "Hoco" clamp.

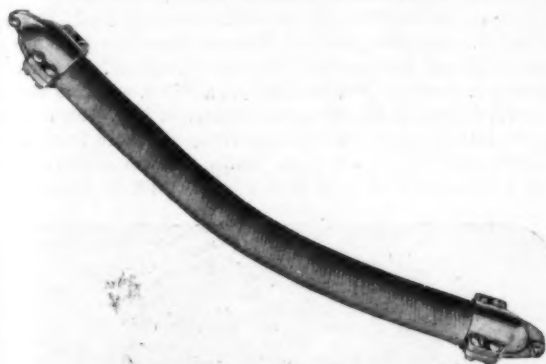


It is made of steel, with aluminum finish, is about 5 x 8 and weighs 2 pounds, therefore is of convenient size to carry around. When clamped upon the inner tube, it forces the cement to the extreme outer edges of the patch where it is most needed.

It not only clamps the patch tightly to the inner tube, but also prevents any air bubbles rising, or the edges peeling back. [Montgomery, Ward & Co., Chicago, Illinois.]

AN AEROPLANE SHOCK ABSORBER.

It is obvious enough that an aeroplane—from the very nature of its work—is liable at times to hit the ground very hard. To be sure, the experienced aviator usually alights with very little shock. The amateur, on the other hand, usually strikes the earth with a thud. But even in the hands of an expert the flying machine is likely at any time to land very suddenly, and any device that will tend to lessen the shock of the impact is sure of a welcome. The pneumatic tires on the wheels, of course,



GOODYEAR BLERIOT TYPE SHOCK ABSORBER.

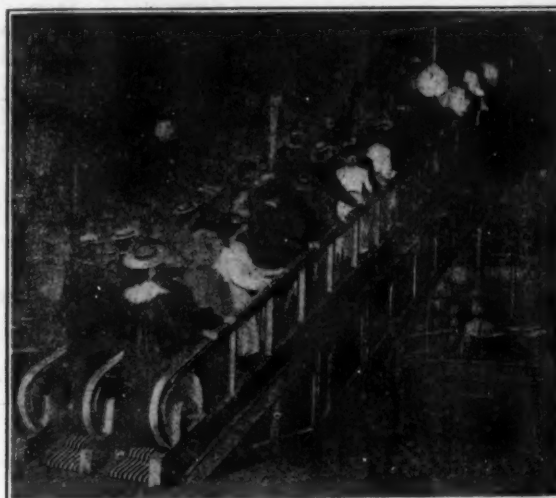
help materially; but it has been found by aviators that some additional shock absorber is eminently desirable.

The Goodyear Tire & Rubber Co. has produced a shock absorber which it called the "Goodyear Bleriot" that has been tried by a number of American monoplane pilots with satisfactory results. The accompanying cut gives a little idea of its appearance. It is made from 14 to 18 inches in length with a diameter of 1 5-16 inch. It is made of such a combination of molded rubber as will give it the greatest strength and elasticity. It is wrapped under tension with a diagonal thread fabric. The aim is to make it tough, durable and capable of standing tremendous shocks. Strong metal clamps securely fastened at each end connect the absorber with the framework. They come in sets of four. Under a load of 300 pounds they will stretch eight inches and have an ultimate stretch of over 200 per cent. [Goodyear Tire and Rubber Co., Akron, Ohio.]

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

MOVING STAIRWAYS FOR FACTORIES.

The primary reason for mentioning this type of escalator is the fact that the hand rail consists of a chain over which is moulded a thick protective covering of rubber. On second thought, there appears another reason for describing it in full—its adaptability to modern rubber factories.



RENO ESCALATOR.

These stairways, though not new by any means, are unusual in factories. The one illustrated will carry 7,500 passengers per hour. The cost of operating is extremely small. They are absolutely safe and are easily controlled. The moving treads are carried upon anti-friction wheels, and the moving hand-rails, as already mentioned, are steel chains covered with rubber. One of the strongest arguments in favor of moving stairways is that the top floors become as desirable to the worker as any others, and this is of great advantage, as the upper floors are always better lighted and ventilated. The same company which makes these stairways also makes them for the purpose of handling merchandise. [Reno Inclined Elevator Company, New York.]

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of April, 1912, and the first ten months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
April, 1912.....	\$207,890	\$90,632	\$653,380	\$951,902
July-March	1,710,395	1,232,428	5,330,999	8,273,822
Total, 1911-12....	\$1,918,285	\$1,323,060	\$5,984,379	\$9,225,724
Total, 1910-11....	1,742,683	1,894,282	5,198,295	8,835,260
Total, 1909-10....	1,580,088	1,593,696	4,082,427	7,256,211
Total, 1908-09....	1,225,882	1,139,271	3,165,096	5,530,249
Total, 1907-08....	1,141,634	1,365,616	3,122,544	5,629,794

The above heading "All Other Rubber," for the month of April, 1912, and for the first ten months of the fiscal years, beginning with July, include the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
April, 1912.....values	\$194,132	\$73,370	\$267,502
July-March	1,869,471	393,920	2,263,391
Total, 1911-12.....	\$2,063,603	\$467,290	\$2,530,893
Total, 1910-11.....	1,528,136	479,213	2,007,349

RUBBER PRODUCTION OF VARIOUS STATES.

IN the general statistics of production, as shown by the census of 1909 (published in the INDIA RUBBER WORLD of May, 1912, page 374), the grand total was shown to be \$202,885,535, composed of the following items:—

	Establishments.	Value of products.
A. Belting and hose	46	\$24,729,221
B. Rubber boots and shoes	22	49,720,567
C. Rubber goods not otherwise specified	227	128,435,747
Total	295	\$202,885,535

The dissection of these items among the various states represented shows the following results:—

A.—BELTING AND HOSE.

	Establishments.	Value of products.
New Jersey	12	\$9,792,625
Massachusetts	8	5,041,271
Ohio	5	3,443,460
Maryland	4	1,317,501
New York	5	1,284,077
Illinois	4	1,255,351
Pennsylvania	3	1,074,843
All other states	5	1,520,093
Total	46	\$24,729,221

[The 5 factories for which separate state production is not given are situated as follows: California, 1; Connecticut, 1; Delaware, 1; Michigan, 1; Oklahoma, 1.]

B.—RUBBER BOOTS AND SHOES.

	Establishments.	Value of products.
Massachusetts	8	\$18,722,363
All other states	14	30,998,204
Total	22	\$49,720,567

[The 14 factories for which separate state production is not shown are situated as follows: Connecticut, 5; Indiana, 1; Missouri, 1; New Jersey, 2; Pennsylvania, 1; Rhode Island, 3; Wisconsin, 1.]

C.—RUBBER GOODS, NOT OTHERWISE SPECIFIED.

	Establishments.	Value of products.
Ohio	37	\$53,910,531
New Jersey	36	19,543,489
Massachusetts	29	15,796,490
Connecticut	13	11,004,556
New York	53	8,783,693
Pennsylvania	13	4,686,330
Indiana	11	4,312,650
Rhode Island	5	3,142,529
Illinois	13	381,363
California	5	322,727
All other states	12	6,551,389
Total	227	\$128,435,747

[The 12 factories for which separate state production is not shown are situated as follows: District of Columbia, 1; Michigan, 2; Minnesota, 2; New Hampshire, 1; Tennessee, 1; Texas, 2; Wisconsin, 3.]

It is understood that the object of grouping the returns of the states with fewest establishments, is to preserve the confidential

nature of the statements made by manufacturers to the special agents. With a small number of establishments, the returns could be identified, which it is desired to avoid.

WHICH IS THE LARGEST RUBBER MANUFACTURING STATE?

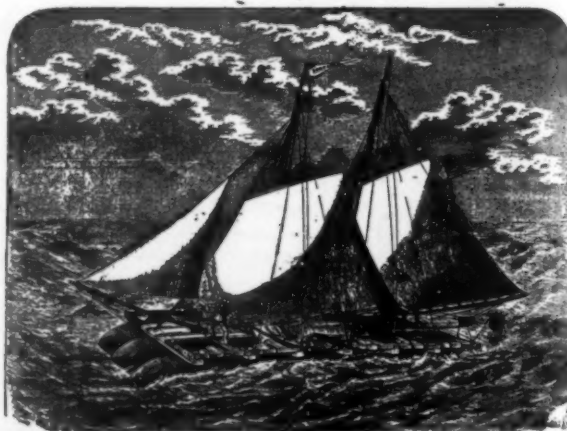
By grouping under the separate states the returns for the three classes of products, the following results are shown:

MANUFACTURES OF RUBBER, CENSUS OF 1909.

	Belting and Hose.	Boots and Shoes.	All other.	Total.
Ohio	\$3,443,460		\$53,910,531	\$57,353,991
Massachusetts ..	5,041,271	\$18,722,363	15,796,490	39,560,124
New Jersey	9,792,625		19,543,489	29,336,114
New York	1,284,077		8,783,693	10,067,770
Connecticut			11,004,556	11,004,556
Pennsylvania ...	1,074,843		4,686,330	5,761,173
Indiana			4,312,650	4,312,650
Rhode Island ...			3,142,529	3,142,529
Illinois	1,255,351		381,363	1,636,714
Maryland	1,317,501			1,317,501
California			322,727	322,727
All other states...	1,520,093	30,998,204	6,551,389	39,069,686
Total	\$24,729,221	\$49,720,567	\$128,435,747	\$202,885,535

LIFE-SAVING RAFTS.

THE universal discussion of better life-saving means, provoked by the terrible "Titanic" disaster, has moved the La Favorite Rubber Manufacturing Co., of Paterson, New Jersey, to distribute a large print of the famous raft "Nonpareil," patented by Edward L. Perry in 1864, in which John Mikes, with two men for a crew, crossed the Atlantic in the summer of 1867. This raft consisted of three rubber cylinders supporting a wooden frame which held the three cylinders in place. Rolled up it occupied a space of only 6 inches by 2 feet and 12 feet long. With the cylinders in-



MONITOR LIFE-SAVING RAFT "NONPAREIL."

flated and the raft constructed it was 12½ feet wide by 22 feet 6 inches long and could support 7 tons. For its transatlantic trip, which it made in 7 weeks, it was fitted out with sails. It would certainly seem that some such collapsible device as this, without the sails, could be stowed away on the decks of steamers in sufficient numbers to take care of any number of passengers. The work of inflating the cylinders and putting the frame together requires but a few moments.

News of the American Rubber Trade.

THE UNITED STATES RUBBER CO.'S PLAN APPROVED.

COL. SAMUEL P. COLT, president of the United States Rubber Co., presided at the special meeting of the stockholders held June 18 to act upon the financial plan proposed at the annual meeting of stockholders in May. No opposition developed and it was approved by more than the necessary two-thirds vote of every class of stock. The plan was approved by the following vote: First preferred, 273,955; second preferred, 79,384, and common, 225,027.

The Board of Directors declared the regular quarterly dividends of 2 per cent. on the first preferred stock, $1\frac{1}{2}$ per cent. on the second preferred stock and 1 per cent. on the common stock, payable, without closing of transfer books, on July 31 to holders of record at 12 m. on July 6 (not including the holders of the \$5,000,000 new common stock issuable July 8, as hereinafter mentioned).

Pursuant to the financial plan recently approved by the stockholders, the Board also declared a common stock dividend of 20 per cent., payable in such stock on July 8 to the holders of record of the common stock at the opening of business on that day.

To cover fractions of shares the usual interim scrip will be issued, which will be exchangeable for stock certificates, when surrendered in amounts aggregating one or more full shares, but which will not be entitled to receive any cash dividend declared or subscription rights prior to the date of exchange.

Also in pursuance of the financial plan, the Board authorized the offer to the holders of record at 3 p. m. on July 12, 1912, of all the stock of the company of all classes then issued (thus including the holders of the new common stock issued as a dividend on July 8) of the right ratably to subscribe for \$10,000,000 of first preferred stock to the extent of $12\frac{1}{2}$ per cent. of their holdings. Subscription warrants will be issued upon which payment must be made on August 15, 1912. Payments for stock on that date will entitle the holders to interest at the rate of 8 per cent. per annum until October 1, 1912, being the same rate as the regular cash dividend now being paid on the first preferred shares. The interest from August 15 to October 1 will be equivalent to 1 per cent. on the par value of the stock subscribed for. The new stock will carry dividends for the quarterly period beginning on the latter date, and the stock certificates will be deliverable as soon as practicable after the closing of the books for the October dividend, together with checks for the interest on the subscription warrants.

The transfer books of the company will be closed from the close of business July 12 to 10 a. m. July 17, 1912.

SCRAP RUBBER DEALERS FORM A CLUB.

In the reviews of trade in old material during the year ending December 31, 1911, which were published in January, many writers deplored that there was not in existence some organization which would correct the abuses existing in the trade, and which would take the lead in standardizing merchandize, appear before railroad commissions when they make up their classifications, and when they fix minimum weights of carloads; which also would appear before our legislators when the tariff is under revision, and do many things which could be accomplished only through organized, concerted effort.

A step in the right direction has at last been taken by some of the leading dealers in scrap rubber, who have formed the Scrap Rubber Dealers' Club. The object of this club is to meet socially, thereby promoting a more friendly feeling, and to discuss subjects of interest to the trade in general. Several meetings have already been held, and fair progress has been made. Not only

has good fellowship been promoted, but among the practical results of the discussions will be a uniform contract for buying goods, and a circular describing what shall constitute good delivery of the different grades of scrap rubber.

The larger dealers have for some time past been guided by circulars which they receive from the manufacturers, but the dealers who do not sell direct to the manufacturers were subjected to much annoyance because they had no circular to guide them. A great deal of unpleasantness will be avoided when each dealer in scrap rubber will receive a circular describing the different grades of goods, so that he will know how the different grades should be assorted.

It is hoped that later the question of arbitration in cases of disputes among dealers will be solved similar to the manner in which now arbitration committees of the different chambers of commerce settle disputes without litigation.

It is also hoped that some steps may be taken to have some correction made of glaring errors which exist in the tariff, and which hinder the importation of goods from abroad. The dealers in these goods recognize the mistakes much easier than the legislators do, and it will be necessary only to bring it properly before the committees which have charge of the revision of the tariff to have the injustice corrected.

When it is considered that the value of old scrap metal handled in the United States during 1911, according to published statistics, amounted to fifty-two million dollars, that the value of scrap rubber at a moderate estimate amounted to probably not less than twenty-five million dollars, and that the value of rag and paper stock amounted to a great many million dollars, it must be admitted that the men who gather and handle this material help in the conservation of the country's resources. Few people realize how great a factor the dealer in scrap material is in the economy of the country; if they did they would treat the junk dealer with the greatest respect. It is surprising that the old material trade has lagged behind in regard to trade organizations, while in other lines of business so much has been accomplished through combined effort.

The scrap rubber dealers have set an example which should be followed by the dealers in other branches in the old material trade. The business should be raised to the dignity which it deserves.

ARTHUR T. HOPKINS GOES TO CLEVELAND.

Arthur T. Hopkins, who had been with the Boston Woven Hose and Rubber Co. for the last thirteen years—the first seven years as assistant superintendent and the last six years as superintendent of their factory at Cambridge, Massachusetts—has resigned to take the management of the factory of the Mechanical Rubber Co., Cleveland, Ohio. His successor at the factory of the Boston Woven Hose Company is J. W. Fellows, who has been with the company for a number of years.

"PARAGOL" A VULCANIZED CORN OIL.

The Corn Products Refining Co., of New York city, has succeeded in producing a material by vulcanizing corn oil that is interesting a great many rubber manufacturers. It has not quite the resiliency of rubber, but still, it has a great deal of resiliency, and what is more to the point, it seems to keep it indefinitely. It is being used quite extensively in the manufacture of small rubber articles, and it has in fact been used with success in such important articles as belts and tires. It is also used in some of the harder kinds of rubber. This product comes in three different grades—soft, medium and hard. It might be stated that there are no minerals added to increase its weight or bulk.

NEW INCORPORATIONS.

CANADIAN CATARACT RUBBER Co., Limited, May 17, 1912; under the laws of Ontario; authorized capital, \$250,000. Incorporators: Emanuel Julius Miner Block and Jacob Dilcher, both of Buffalo, New York, and Lorenzo Clarke Raymond, Welland, Ontario. To construct and operate a complete rubber plant for the manufacture of automobile tires, horseshoe pads, and all kinds of tires, etc.

Gotham Sporting Goods Co., May 27, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Benjamin Goodman, 354 Franklin street, Buffalo, New York; Henry Ephraim, 57 Warren street, New York, and Ben Stacy, 526 West One Hundred and Fifty-eighth street, New York. Location of principal office, New York. To deal in sporting goods, tires, rubber goods, etc.

The Hadfield Rubber Co., June 8, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: John, Hugh R., and Maude M. Hadfield. Location of principal office, Akron, Ohio. To buy, own or sell all articles, merchandise, etc., of which rubber is a component.

Hubmark Rubber Co., May 16, 1912; under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: George H. Mayo, 174 Congress street; William H. Mayo, 197 Congress street, and Orvil W. Smith, 401 Sears Building—all of Boston, Massachusetts. To purchase, sell and deal in rubber goods and footwear of all kinds.

Liberty Rubber Co., May 22, 1912; under the laws of New Jersey; authorized capital, \$50,000. Incorporators: B. S. Matnz, L. H. Gunther, and John R. Turner—all of 15 Exchange Place, Jersey City, New Jersey. To manufacture, buy, sell, compound and produce rubber tires, rubber cement and all goods of which rubber is a component part.

Manchester Rubber Co., May 24, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Sam Honeyman, 1115 Main street, Lynchburg, Virginia; Alfred Van Wagner, Hollywood avenue, Far Rockaway, New York, and Samuel Rosenberg, 225 Dumont avenue, Brooklyn, New York. Location of principal office, New York. To manufacture rubber clothing, etc.

Mohawk Tire Co., June 13, 1912; under the laws of New York; authorized capital, \$6,000. Incorporators: Henry J. Moses, Winifred G. and Clarence B. Rice—all of Syracuse, New York. Location of principal office, Syracuse, New York. To deal in automobile tires.

Non-Destructible Tire Protector Co., June 7, 1912; under the laws of New York; authorized capital, \$25,000. Incorporators: Martin Pelz, 849 Willoughby avenue, Brooklyn, New York; William Weiner and Herman Seufert—both of 202 Weirfield street, Brooklyn, New York. Location of principal office, Brooklyn, New York.

The Peerless Rubber and Tire Co., May 28, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: R. G. Nieman, John T. Hickman, and Edward Umbstaetter. Location of principal office, Toledo, Ohio. To buy, sell, and deal in automobile tires and accessories, rubber goods, etc.

Resilient Punctureless Tire Co., June 18, 1912; under the laws of New York; authorized capital, \$200,000. Incorporators: Seth H. Sheldon, 106 West Seventy-first street, New York, and Flossie H. and Leroy McCreedy—both of 62 West Ninety-third street, New York. Location of principal office, New York.

Resilio Tire Co., May 25, 1912; under the laws of New York; authorized capital, \$100,000. Incorporators: Edgar T. Wallace, T. S. Williamson, and L. H. Starkey—all of 71 Broadway, New York. Location of principal office, New York. To manufacture automobile tires, etc.

Robert Stock Auto Spring Wheel Co., May 28, 1912; under the laws of New York; authorized capital, \$300,000. Incorporators: Robert Stock, Tuckahoe, New York; Joseph F. Bokelmann, Yonkers, New York, and Augusta M. Stock, Tuckahoe, New York. Location of principal office, New York. To manufacture auto spring wheels, etc.

PRODUCTION OF ASBESTOS IN THE UNITED STATES.

Asbestos is unique among minerals, in the fact that it has a distinct fibrous structure with a high degree of flexibility and tensile strength, and furthermore—a very important point—it is non-combustible. The demand is constantly increasing for asbestos fabrics, insulating tapes, steam packings and friction facing in automobile brakes. Workers in molten metal find asbestos leggings and shoe coverings exceedingly desirable.

Only the higher grade of asbestos can properly be used for steam packing; the lower grades are used for making shingles, slates and boards.

The little booklet recently sent out by the Department of the Interior, United States Geological Survey, gives an advance chapter from "Mineral Resources of the United States for the Calendar Year of 1910" on the production of asbestos. The United States produced in 1910, 36,093 tons of asbestos, valued at about \$70,000, showing an increase of 20 per cent. in quantity, and 9 per cent. in value over the preceding year. There are four producing states, Georgia, Idaho, Vermont and Wyoming; Vermont and Georgia leading and showing an increased output of 23 per cent. over their production for 1909. The asbestos produced in Vermont and Wyoming is the chrysotile variety and is more valuable than the amphibole variety produced in the other two States. The asbestos production of the United States, however, is only about 1/12 of that of Canada.

WHEN THE DAILIES TALK ON RUBBER.

Not the most valuable but without doubt the most entertaining information that can be secured regarding the rubber industry is to be found in the daily prints. A recent issue of a highly reputable and influential daily, published in Maine, in the course of a half-column article on rubber growing, makes several interesting statements.

Speaking of the necessity of finding some substitute for rubber, it remarks that "the rubber plant of the tropics cannot be tapped profitably before it is 25 years old—50 years is better." Imagine the speculative public investing its money in rubber plantations with the prospect of getting returns in 50 years.

Here is another interesting statement. "Millions of dollars have been invested in rubber plantations in Mexico and other tropical countries, but it must be years before any substantial returns are had from these investments." This statement is quite consistent with the first, but not particularly consistent with the fact that English investors have in some cases received as high as 400 and 500 per cent. from their plantation properties in Ceylon and the Malay peninsula.

And here is a third: "A French chemist by a secret process has produced an article which has all the desired properties of rubber and something more. The French automobile makers are using tires (made of this secret substance) on their new cars." If they are, they certainly are keeping very quiet about it.

KATZENBACH & BULLOCK CO.

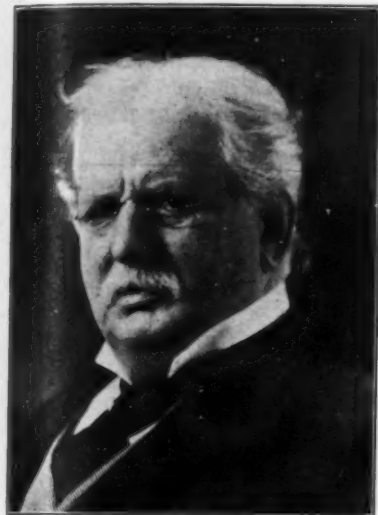
The annual meeting of the stockholders of the Katzenbach & Bullock Co., Trenton, was held early in June, when the retiring directors were re-elected and the directors in turn elected the same officers to serve for the ensuing year as had served previously, namely, William Katzenbach, president; Edward L. Bullock, vice-president; Frederick F. Katzenbach, secretary and treasurer. The company report an increasing volume of business and note particularly a growth in their trade with the rubber manufacturers.

**THEODORE N. VAIL, THE NEW UNITED STATES RUBBER CO.
DIRECTOR.**

At the last annual meeting of the United States Rubber Co., held in New Brunswick, May 21, Theodore N. Vail was elected a director of the company. Ordinarily the expression is only a piece of reprehensible slang, but in referring to Mr. Vail—considering both his characteristics and his position as president of the American Telephone and Telegraph Co.—it seems quite

justifiable to refer to him as a "live wire." Certainly it describes him. There are few men in American life today that have his superabundance of energy and personal force.

He was born in Ohio in July, 1845. That makes him at the present time 67 years old, but he doesn't know it. One of his illustrious ancestors was John Vail, the Quaker preacher, who settled in New Jersey in 1710, but Mr. Vail himself doesn't look very much like a Quaker. Though he was born in Ohio, he



THEODORE N. VAIL.

spent the greater part of his youth in New Jersey, and in due time graduated from the Morristown Academy. An uncle was a doctor, and they put the boy in his office, where he perused medical literature with more or less assiduity for two years. But guessing whether a patient had whooping cough or St. Vitus dance didn't appeal to young Vail, and in outside moments in a local office, he had learned telegraphy, and when about that time his father moved to Iowa, he accompanied the family but pushed on still further, to Missouri, and got a position as telegrapher. That was about 1869. Shortly after a friend secured him a position in the railway mail service, which in those early days was as slow, unsystematic and chaotic as a government service could well be. Young Vail immediately set to work, though only a clerk, to devise schemes for systematizing the service. He attracted the attention of the authorities at Washington, and they made him assistant superintendent of the railway mail service. This was followed soon after by his appointment, in 1876, to the position of general superintendent. The present efficient character of the railway mail service dates back to the innovations of Mr. Vail's incumbency.

About that time a youngish man, Alexander Graham Bell, was working out a scheme of talking over a wire. Most people said it was a crazy scheme, but Mr. Vail thought there was a great deal in it and he became general manager of the American Bell Telephone Co. in 1878. He had some great dreams regarding what the telephone might do and much disturbed the directors of the company, who thought it never could be used except locally, by insisting that if you could talk over wire for a mile or two you could do the same thing for many miles. He built a telephone from Boston to Lowell, and then one from Boston to Providence. Even the telephone people said that wouldn't work, but Vail said it would, and it did. Under his direction the telephone rapidly became a colossal institution.

In 1890 he thought he would retire from commercial life and take up farming, which had always appealed to him. He

bought a large farm in Vermont and started in to raise a great variety of fancy stock. Incidentally he traveled a great deal, and in 1893 going to South America and seeing what tremendous opportunities there were there he couldn't resist the temptation to do something. Among the things he did was to build, just outside the city of Cordoba, an electrical power plant that practically did the whole work of the city—lighting it, carrying its people in the street cars and running all its factories. Then he bought a horse-car line in Buenos Aires and soon had the streets covered with a wonderful trolley system. But these incidental activities were not enough to satisfy Mr. Vail, and in 1907 he took the presidency of the great American Telephone and Telegraph Co., and what that is and what it is doing nobody needs to be told.

PERSONAL MENTION.

W. R. Bliss, who has had many years' experience in the mechanical rubber goods line, having been connected as salesman at different times with the Manhattan Rubber Manufacturing Co., The Diamond Rubber Co. and the Gutta-Percha and Rubber Manufacturing Co., has been appointed manager of the mechanical goods department of the Goodyear Tire and Rubber Co., Akron, Ohio.

Charles V. Wick, who has been with the selling department of the New York office of the United States Rubber Co. for the past 15 years, was married to Miss Mary Schad, of Richmond Hill, Long Island, on June 26.

Charles I. O'Neil, who had been connected with the New York office of the United States Rubber Co. for 10 years, most of that time in the selling department, has joined the Iroquois Rubber Co., Buffalo, New York, in the capacity of salesman.

LARGE EXPORTS OF AUTOS AND AUTO TIRES.

According to figures just given out by the Bureau of Statistics at Washington, the exports of automobiles for the year ending June 30, 1912, will prove to amount to 20,000 in number, with a valuation of \$27,000,000. This includes not only the value of the entire machines but of the parts exported and of tires, which alone amount in value to nearly \$3,000,000. These figures cover only the exports to foreign countries and do not include the 900 machines, valued at \$1,500,000, sent to the distant possessions of the United States.

The growth in exports of automobiles from the United States has been especially marked during the period since 1905, this growth being coincident with the expansion of the domestic industry and a corresponding decrease in imports of automobiles. The value of domestic manufactures of this class of articles increased from 5 million dollars in 1899 to 30 million in 1904, an increase of 25 million dollars; while in the period from 1904 to 1909 the value of the output increased practically 220 million dollars, from 30 million dollars in 1904 to 249 million in 1909. Accompanying this notable growth in production, the imports of automobiles decreased from 4¼ million dollars in 1906 and 4¾ million in 1907 to approximately 2¼ million dollars in 1912.

Approximately 25 per cent. of the automobiles exported from the United States are shipped to Canada; about 40 per cent. to Europe, chiefly Great Britain; about 20 per cent. to British Australia, about 8 per cent. to South America. During the ten months, ending with April, the latest period for which figures of distribution are available in the Bureau of Statistics, 4,716 automobiles were exported to the United Kingdom, 4,424 to Canada, 3,034 to British Oceania, 1,282 to South America, 849 to Asia, and other Oceania, and 2,502 to all other foreign countries. There were also shipped, during the same period, 410 automobiles to Hawaii, 342 to Porto Rico and 11 to Alaska.

FRED T. RYDER WITH THE CONSUMERS' RUBBER CO.

Mr. Fred T. Ryder has been appointed general selling agent of the Consumers' Rubber Co., of Bristol, Rhode Island. There are very few men who have had a more extended connection with the rubber footwear trade than Mr. Ryder. He became connected with the Boston Rubber Shoe Co., as private secretary to the late Elisha S. Converse over 30 years ago. He served as Mr. Converse's secretary for over 20 years, but, in addition to that work gradually assumed various other positions, being secretary and assistant general manager of that company at the time it was purchased by the United States Rubber Co. He was also for some years treasurer of the Easthampton Rubber Thread Co.



FRED. T. RYDER.

After the Boston Rubber Shoe Co. became a part of the United States Rubber Co., Mr. Ryder was for some years one of the selling agents of the latter organization, with particular charge of the sales of the Boston Rubber Shoe and Bay State brands. He resigned his position with the United States Rubber Co., in January, 1908, and soon after became selling agent of the Apsley Rubber Co., a position that he has occupied until quite recently. He goes to the reorganized Consumers' Rubber Co., with a thorough equipment in selling experience, with an extended acquaintance and wide popularity in the trade. The company may esteem itself quite fortunate in having its selling department in Mr. Ryder's hands.

MARRIAGE OF ROSWELL C. COLT.

Roswell Christopher Colt, second son of Col. Samuel P. Colt, president of the United States Rubber Co., was married on June 29, in St. Paul's Church, Knightsbridge, London, to Miss Dorothy Borrandale Chipman, daughter of Mr. and Mrs. C. C. Chipman, of that city. Col. Colt was present at the wedding, having sailed from New York, on the Lusitania, June 18, expressly for that purpose.

COL. COLT IN HIS MAINE CAMP.

Col. Samuel P. Colt, president of the United States Rubber Co., following his annual custom for some years, went to his camp at Mt. Katahdin early in June for a two weeks' outing. He had with him quite a party of invited guests who went and returned in his private car. Among those in the party were Dr. C. S. May and Mr. Nathaniel Myers, of New York; Judge Le Baron B. Colt, Colonel and Mrs. Harold J. Gross, Miss Beatrice Colt, Miss Ruth Anthony, of Boston; the Rev. Dr. George Locke, Bristol, Mrs. Gertrude Child Barrows, Mrs. William Beresford and Mr. Walter S. Ballou, of Providence.

ERNEST BERLYN VISITS AMERICA.

Ernest Berlyn, of Paris, France, who for a number of years has distributed various brands of footwear made by the United States Rubber Co. in that country, recently visited America, for the first time in ten years. He took a tour of inspection through the mills of the Boston Rubber Shoe Co. and other mills whose product he handles, and, together with Mrs. Berlyn, visited Washington and other points of special interest. He sailed from New York on June 18, on the Lusitania.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending June 22:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, April 30, 1912—1%.

Week June 1	Sales 12,010 shares	High 65¾	Low 61¾
Week June 8	Sales 3,800 shares	High 64¾	Low 63
Week June 15	Sales 3,100 shares	High 64¾	Low 62¾
Week June 22	Sales 12,870 shares	High 67	Low 63¾

For the year—High, 67¾, May 21; Low, 45¾, February 1.
Last year—High, 48¾; Low, 30¾.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 30, 1912—2%.

Week June 1	Sales 1,705 shares	High 112	Low 111
Week June 8	Sales 1,960 shares	High 112	Low 111
Week June 15	Sales 800 shares	High 111¾	Low 111½
Week June 22	Sales 1,700 shares	High 111¾	Low

For the year—High, 116, May 20; Low, 109, January 30.
Last year—High, 115¾; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 30, 1912—1¼%.

Week June 1	Sales 700 shares	High 82½	Low 82
Week June 8	Sales 700 shares	High 82½	Low 81
Week June 15	Sales 100 shares	High 81½	Low 81¾
Week June 22	Sales 800 shares	High 82¾	Low 80½

For the year—High, 85½, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$18,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week June 1	Sales 35 bonds	High 104¾	Low 104¾
Week June 8	Sales 43 bonds	High 104¾	Low 104¾
Week June 15	Sales 23 bonds	High 104¾	Low 104¾
Week June 22	Sales 14 bonds	High 104¾	Low 104¾

For the year—High, 105, February 24; Low, 103¾, January 6.
Last year—High, 105; Low, 101¾.

RIGHTS.

Week June 22	Sales 3,300 rights	High 104¾	Low 104¾
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A VEIN OF ASBESTOS IN CALIFORNIA.

A miner, who was developing a gold quartz ledge on his claim in Sierra County, California, recently discovered a large vein of asbestos. It is from 6 inches to 4 feet wide, of a soft and fluffy fibre, which, while short and thus not available for weaving into asbestine cloth or matting, may have commercial value for fillings for fireless cookers and fireproof roofing.

Samples of this newly discovered asbestos have been sent not only to the State mineralogist for technical classification, but to various manufacturers in San Francisco, and also in the East. One obstacle in the way of a successful development of this asbestos mine, lies in the fact that it is 40 miles from a railroad station, but that is an obstacle that will be readily overcome if the fibre proves to have sufficient value.

NEW CANADIAN REGULATION AFFECTING HARD RUBBER.

By a regulation, under Section 286 of the Canadian Customs Act, which went into effect on June 14, hard rubber in strips or rods, but not further manufactured, when for use in Canadian manufactures, may be imported into Canada free of customs' duty. It should be designated as under item 755 of the Customs Tariff.

GENERAL BAKELITE COMPANY STARTS INFRINGEMENT SUITS.

The General Bakelite Co. has brought suits for infringements of its Bakelite patents against the Condensite Co. of America and several users of "Condensite"; among them the Dickinson Manufacturing Co., of Springfield, Massachusetts; the Duranoid Manufacturing Co., of Newark, New Jersey, and Hardman & Wright, of Belleville, New Jersey.

In relation to this, it is of interest to note that the fundamental Bakelite patents have been allowed in Germany and have been sustained by the German patent office, notwithstanding the fact of several public contestations.

A CUSTOMS RULING ON RAINCOATS.

A customs ruling that will be interesting to importers of waterproof garments was handed down by the Board of United States General Appraisers on June 12 in a decision sustaining protests filed by F. B. Vandegrift & Co., relating to importations of waterproof coats. Duty was exacted on the raincoats at the rate of 50 per cent. ad valorem under the provision in the tariff act of 1909 for cotton wearing apparel. The goods were composed of cotton and india rubber, and in the judgment of the Collector cotton was the component of chief value in the merchandise. The importers, however, insisted that the value of the rubber was greater than the cotton, and alleged that the duty should be at the rate of 35 per cent. as manufactures of india rubber. The Collector was reversed.

A CUSTOMS RULING ON RUBBER BELTS.

One of the large dry goods firms of New York recently imported a quantity of belts composed of silk, cotton and rubber with ornaments in various designs made of steel points. The belts were assessed by the collector as silk and India-rubber wearing apparel, at the rate of 60 per cent. ad valorem, under the provision of paragraph 402 of the tariff act. The importer, however, protested and succeeded in getting a new ruling which levied a 45 per cent. duty on the belts under the provisions of paragraph 199 on the ground that their chief value was of metal. This was a case where the ornamentation materially decreased the cost of bringing in the goods.

ILLUMINATING STRIPS.

With the great increase in electrical illuminating devices for decorative uses, there has come into vogue a variety of illuminating strips, both for indoor and outdoor use. These were used on a tremendous scale during the coronation exercises in London last summer. They are made in various ways, but those in most general use are made of a flexible vulcanized rubber cable, which is mounted with small lamp sockets holding bulbs of small



SPECIMEN OF ILLUMINATING STRIP.

candle-power, either clear or frosted or in color effects. These bulbs rest in sockets fitted in the cable at varying distances, from 6 inches to 36 inches apart. These sockets are of brass or aluminum, the latter being distinctly preferable for outdoor use. Rubber rings or sleeves are fitted as a covering for the lamp sockets to make them watertight. These cables come in any length desired and are shipped in coils in a size convenient for handling.

It is stated that two large New York banking houses will take a very considerable part of the new issue of \$5,000,000 7 per cent. preferred stock of the Goodyear Tire and Rubber Co., Akron, Ohio.

PNEUMATIC TIRES FOR ELECTRICAL VEHICLES.

Building pneumatic tires for electrically propelled vehicles has long been regarded as one of the knotty problems confronting tire manufacturers. It has been necessary to meet two important conditions: First, to make a tire that will give high mileage, and, second, to get a tire sufficiently resilient to keep the current consumption down to the lowest point and the radius action up to the highest.

The ordinary gas-car tire, while suited to the rough work on high-power gas cars is out of place on the electric. This car must have a tire as pliable and resilient as it is possible to make it. A stiff tire not only produces higher current bills, but also increased battery renewal bills, owing to the frequent recharging that it makes necessary.

The United States Tire Co. has issued an announcement regarding a new special electric tire just placed on the market. This tire is guaranteed for 5,000 miles, which in itself is unusual, and furthermore, it has proved in actual tests that it exerts a saving influence on current consumption of from twenty to twenty-five per cent.

TRADE NEWS NOTES.

In explaining the desirability of increasing the capitalization of the United States Rubber Co., President Samuel P. Colt stated that it was considered an opportune time for his company to erect a new tire plant, to be the largest tire plant in the world. He estimates the cost of such a plant at between \$3,000,000 and \$5,000,000. No announcement has yet been made of the probable location of this plant.

Plans are being prepared by the Federal Rubber Manufacturing Co. for a six-story addition to its plant in Cudahy, Wisconsin. The new building will be 400 x 100 feet and will give the company more than double its present capacity. This company is the successor of the Federal Rubber Co., purchasing its plant last July. At that time it had a payroll of thirty-eight men; now, including its factory force, sales force and construction force, it employs over 700 men. Its products include automobile and other tires as well as various other articles.

There was a fire in the plant of the Stamford Rubber Supply Co., Stamford, Connecticut, on June 10, which crippled the company temporarily, but was not serious enough to shut down the plant for more than a few days. The fire started in the black substitute department and the heat was intense, but as the building is of concrete it remained intact, with the exception of the loss of a number of window frames, and with the further destruction of the machinery in the room where the fire originated. The loss was fully covered by insurance.

On June 29 the Intercontinental Rubber Co. paid a regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock, to stockholders of record June 19.

The Board of Directors of the Rubber Goods Manufacturing Co. on June 5 declared the 53rd regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock, and a dividend of 1 per cent. on the common stock. Both were paid June 15.

The Republic Rubber Co., of Youngstown, Ohio, makers of the famous Staggard tread tires, have opened a branch in Cleveland, Ohio, at 5919 Euclid avenue. Mr. B. C. Swinehart, who is in charge, has been at the head of the truck tire sales department of the Republic Rubber Co. for three years, and is thoroughly conversant with every phase of the tire business, both in selling and in caring for users.

The Diamond Rubber Co., which is soon to have a branch in Omaha, Nebraska, expects to erect its own building and has secured a plot 22 feet x 70 feet at 2034 Farnam street.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MAY 7, 1912.

- N**O. 1,025,122. Machine for making dress shields of india-rubber. H. Cassirer, Charlottenburg, Germany.
- 1,025,139. Chain guard for vehicle wheels. C. T. Raymond, Chicago, Ill.
- 1,025,203. Tire plug inserter. F. B. Parks, Grand Rapids, Mich.
- 1,025,207. Surgical kit. H. W. Sanford, Washington, D. C.
- 1,025,209. Elastic vehicle wheel. F. I. Sears, Oakland, Cal.
- 1,025,285. Tire armor. C. H. Maddox, Canton, Mo.
- 1,025,321. Apparatus for impregnating fabric with rubber. W. C. Silverson, Buffalo, N. Y.
- 1,025,324. Method of treating leather and product thereof. W. R. Smith, assignor to Buffalo Leather Co.—both of Buffalo, N. Y.
- 1,025,343. Spring wheel. H. V. Stuart, Louisville, Ky.
- 1,025,345. Quickly detachable hinged clincher ring. W. W. Ward, New York.
- 1,025,400. Resilient anti-kidding wheel. H. G. Hugon, Calais, France.
- 1,025,410. Sprinkler. R. Lindner, Erie, Pa.
- 1,025,465. Game apparatus. A. B. Hill, Hoboken, N. J.
- 1,025,473. Resilient wheel. F. H. Lacey, Richland, Mo.
- 1,025,483. Vehicle wheel. T. Rhodus, Chicago, Ill.
- 1,025,497. Life saving device. C. J. Wensley, Huntington, N. Y.
- 1,025,504. Combined vibrator and vacuum apparatus. J. Birrell and W. Birrell, Seattle, Wash.
- 1,025,528. Demountable rim. R. E. Jeffery, Piedmont, Cal.
- 1,025,543. Hydrometer for storage batteries. E. W. Smith, Philadelphia, Pa.
- 1,025,571. Foot support. C. A. Howe, Chicago, Ill.
- 1,025,591. Vehicle wheel. C. B. Ross, Greenleaf, Kan.
- 1,025,610. Pneumatic tire for vehicle wheels. G. Desson, Paris, France.
- 1,025,734. Vehicle tire. F. J. Bosquett, Jersey City, N. J.
- 1,025,748. Baseball curver. R. W. Jones, Lincoln, Neb.
- 1,025,800. Mop. W. B. Fuller, Catsauqua, Pa.
- 1,025,854. Automobile tire. L. C. Beaumont, Hudson Falls, N. Y.

Trade Marks.

- 61,183. *Sté. Anonyme Pour Le Commerce & l'Industrie du Caoutchouc*, Brussels, Belgium. The word *Royal* under tiger's head in circle. For rubber toy balloons.
- 62,185. The B. F. Goodrich Co., Akron, Ohio. The words *Master Tread*. For automobile tires made wholly or partly of rubber.

ISSUED MAY 14, 1912.

- 1,025,986. Bulb. H. W. Lester, assignor to The Post & Lester Co.—both of Hartford, Conn.
- 1,025,987. Tire tool. A. A. Lond, Rochester, N. Y.
- 1,026,038. Tire. G. S. Howe, Richmond, Va.
- 1,026,172. Life preserver. J. A. O'Brien, Seattle, Wash.
- 1,026,201. Spring tire. George Burson, Winamac, Ind.
- 1,026,224. Antiskidding device for vehicles. M. J. Rohr, Washington, D. C.
- 1,026,229. Portable steam vulcanizer. E. A. Stier and R. C. Byrd, Dayton, Ohio.
- 1,026,271. Centrifugal separator. G. M. Leshner, Newark, N. J.
- 1,026,291. Vehicle wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.
- 1,026,292. Vehicle wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.
- 1,026,316. Spare tire case. C. F. Hopewell, Newton, Mass.
- 1,026,370. Vehicle wheel. H. J. Sewell, Detroit, Mich.
- 1,026,460. Water bottle for infants. M. L. Rusk, New York.
- 1,026,468. Cushion tire for vehicle wheels. M. J. Selzer, assignor to The American Tire and Rubber Co., Akron, Ohio.
- 1,026,499. Jack for tightening antiskid chains. W. F. Edgington, Springfield, Ohio.
- 1,026,598. Hose. F. R. Neff, assignor to C. A. Daniel—both of Philadelphia, Pa.
- 1,026,611. Electrically heated syringe. M. H. Shoenberg, assignor to The Presto Electrical Mfg. Co.—both of San Francisco, Cal.

Reissue.

- 13,419. Elastic tire. G. S. Doty and J. D. Show, Philadelphia, Pa., assignors to D. & S. Airless Tire Co., of Delaware.

Design.

- 42,526. Elastic tire. P. W. Pratt, Boston, Mass.

Trade Marks.

- 44,457. The Beacon Falls Rubber Shoe Co., Beacon Falls, Conn. The word *Granite*. For rubber boots, etc.
- 62,242. The M. & M. Mfg. Co., Akron, Ohio. The letters *M & M*. A solution for vulcanizing.
- 62,421. Massachusetts Chemical Co., Walpole, Mass. The word *Resistolac*. Insulating compound.
- 62,635. A. G. Spalding & Bros., Jersey City, N. J. The word *Witch*. For golf balls.

ISSUED MAY 21, 1912.

- 1,026,667. Tire inflation mechanism. R. L. Foster, Fort Riley, Kan.
- 1,026,691. Process of producing isoprene. G. Merling and H. Kohler, assignors to Farbenfabriken vorm. Friedr. Bayer & Co.—both of Elberfeld, Germany.

- 1,026,692. Process of producing isoprene. G. Merling and H. Kohler, assignors to Farbenfabriken vorm. Friedr. Bayer & Co.—both of Elberfeld, Germany.
- 1,026,742. Combination hose nozzle and sprayer. F. J. French, Cleveland, Ohio.
- 1,026,803. Automobile tire. E. M. Hamilton, Willow Springs, Cal.
- 1,026,810. Spring wheel. J. Kuehl and J. Stefanowski, Detroit, Mich.
- 1,026,822. Resilient wheel. F. C. Oldham, Brooklyn, N. Y.
- 1,026,829. Vehicle wheel. K. A. Read, Oakaloosa, Iowa.
- 1,026,830. Stopper. W. H. Redington, Evanston, Ill.
- 1,026,836. Pneumatic tire fabric having annular elastic zones. L. A. Subers, Cleveland, Ohio.
- 1,026,858. Pneumatic tire for vehicle wheels. L. A. Garchey, Paris, France.
- 1,026,893. Pneumatic cushion for vehicles. F. I. Baker, Orange, Mass.
- 1,026,903. Resilient wheel. L. Burdy and E. F. Moine, Eureka, Cal.
- 1,026,975. Tire setting machine. C. A. Devero, Keokuk, Iowa, assignor to Keokuk Hydraulic Tire Setter Co.
- 1,026,994. Automatic fire hose valve. P. Mueller, assignor to H. Mueller Mfg. Co.—both of Decatur, Ill.
- 1,027,030. Eraser tip for lead pencils, etc. C. W. Boman, assignor to Eagle Pencil Co.—both of New York.
- 1,027,108. Tire protector. W. T. Dorgan, assignor to The Standard Tire Protector Co.—both of Akron, Ohio.
- 1,027,130. Cushion tire for vehicles. W. S. Holmes, Ithaca, and W. B. Johnson, assignors to A. Zinsser, Jr., New York.
- 1,027,155. Attachment for hose. P. R. Robbins, Philadelphia, Pa.
- 1,027,247. Tire. G. Gray, Sisseton, S. D.
- 1,027,255. Heel for boots and shoes. E. Kempshall, Garden City, N. Y.
- 1,027,363. Wringer. W. M. Valentine, Glen Cove, N. Y.

Trade Mark.

- 59,622. Polack Tyre Co., New York. The words *Polack Tyres* in two circles, with trees.

ISSUED MAY 28, 1912.

- 1,027,438. Rubber overshoe. A. E. Roberts, Norwalk, Ohio.
- 1,027,450. Antiskid device. L. S. Thompson, Jersey City, N. J.
- 1,027,487. Watch guard. G. M. Lindsey and W. A. Lindsey, Los Angeles, Cal.
- 1,027,497. Tire tester. E. H. Neu, Pana, Ill.
- 1,027,507. Vehicle wheel. A. F. Schulz, Milwaukee, Wis.
- 1,027,508. Locking cap for tire valves and the like. M. C. Schweinert, West Hoboken, N. J., and H. P. Kraft, New York.
- 1,027,647. Vehicle wheel. L. R. Gruss, assignor to Auto-Compressed Air Wheel Co.—both of Chico, Cal.
- 1,027,659. Apparel shoe heel. M. Lage, Gladbrook, Iowa.
- 1,027,733. N. H. Horne, Kansas City, Mo.
- 1,027,800. Pneumatic tire protector. C. A. Belew, San Diego, Cal.
- 1,027,897. Ankle supporter. A. Quenzer, New York.
- 1,027,983. Tire. J. Bropson, Cleveland, Ohio.
- 1,027,999. S. A. Deatherage, Richmond, Ky.
- 1,028,067. Machine for manufacturing hose. A. C. Bolton, assignor to The Gutta-Percha and Rubber Mfg. Co.—both of New York.

Trade Marks.

- 48,807. The American Asphaltum & Rubber Co., Chicago, Ill. Circle decorated with dots and lines. For waterproofing asphalt, etc.
- 48,810. The American Asphaltum & Rubber Co., Chicago, Ill. Circle decorated with dots and lines. For mineral rubber, etc.
- 62,442. Goodyear Rubber Hose and Packing Co., Philadelphia, Pa. The word *Steersase* with circle in center connecting first and last letter.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 1, 1912.]

- 526 (1911). Coating waste rubber blanks. J. Markus, 107 Corporation street, Manchester.
- *580 (1911). Insulating material for electrolytic apparatus. M. Reid, 506 Caxton Building, Cleveland, Ohio, U. S. A.
- *616 (1911). Hard rubber casings for galvanic batteries. F. W. Schmidt, 127 Edward street, Philadelphia, Pa., U. S. A.
- 603 (1911). Inflatable wearing apparel. D. J. Wintle, Weybridge, Surrey.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 8, 1912.]
- 833 (1911). Rubber disks in machinery for treating fabrics. S. Melling Whitefield, Lancashire.
- 897 (1911). Tube in shuttle threading mechanism. G. Ashton, 72 Regent Road, Morecambe, Lancashire.
- 921 (1911). Tire attachments to rims. A. T. Andrews, The Wheel Works, Smethwick, Birmingham.

- 954 (1911). Pencil holder partly composed of rubber. E. Gerspacher, 23 Stumpfergasse, Vienna.
- 975 (1911). Production of isoprene. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1060 (1911). Convertible goloshes. C. W. Randall, The Hollies, Grove Hill, Woodford, Essex.
- 1065 (1911). Artificial whalebone machinery. W. P. Thompson, 6 Lord street, Liverpool.
- 1071 (1911). Treatment of lac for obtaining silk-like strands. W. A. Freymuth, 63 St. James' street, London.
- 1090 (1911). Improvements in driving belts. J. E. Rogers, 20 Somerfield Crescent, Birmingham.
- 1124 (1911). Intermediate products of synthetic caoutchouc. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1125 (1911). Production of caoutchouc substitutes. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1158 (1911). Pneumatic pads for face treatment. M. Gilson, 25 Saville Row, London.
- 1272 (1911). Wrapping and preserving eggs in rubber wrappers. L. A. Pichon, 50 Rue de Berri, Paris, France.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 15, 1912.]

- 1367 (1911). Stethoscopes. C. A. Teske, 33 Percy street, Tottenham Court Road, London.
- 1368 (1911). Improvements in manufacture of goloshes. B. Münch, Rostow-on-Don, Russia.
- 1393 (1911). Rubber filling for tire treads. A. Collis, 43 Regent Square, London.
- 1395 (1911). Air chambers for tires. C. S. & J. A. Challiner—both of Victoria Park, Manchester.
- 1445 (1911). Synthetic caoutchouc. A. Heinemann, 10 Sumner Terrace, Onslow Square, London.
- *1467 (1911). Elastic cushion in horseshoe. C. E. Pearl, Beachmont, Mass., U. S. A.
- 1471 (1911). Elastic tire bodies and cores. E. J. Clarke, Leytonstone, London.
- 1480 (1911). Exercising apparatus. S. C. Caddy, Keynsham, near Bristol.
- 1512 (1911). Improvements in golf balls. A. C. B. Bell, 17 Lansdowne Crescent, Edinburgh.
- 1525 (1911). Game of "Bolette." J. H. Matthews, Farnham Royal, Buckinghamshire.
- 1646 (1911). Rubber tires. E. B. Killen, 27 Queen Victoria street, London.
- 1680 (1911). Draught excluders. P. F. Farish, 14 Wine Office Court, London.
- 1685 (1911). Rubber tapping knives. H. F. Blyth, Stockton, near Rugby.
- 1723 (1911). Rubber substitute from starch, etc. F. Tolkien, East Barnard, Hertfordshire.
- 1778 (1911). Rubber feet for portable seats. C. Nesbitt, Bearsden, Dumbartonshire.
- 1792 (1911). Insertion of rubber in golf clubs. H. Cawsey, Skegness, Lincolnshire.
- 1927 (1911). Dust shields for wheels. J. Léonard, 27 Avenue Jules Joffrin, St. Maur (Seine), France.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 22, 1912.]
- 2028 (1911). Self-sealing air tubes in tires. J. Steinberg, 29 Rue Buret, Paris.
- 2064 (1911). Fabric for balloons. H. Dittmar, 2 Karolinenstrasse, Munich, Germany.
- 2112 (1911). Antislipping tire. E. J. Buckingham, 193 Upland Road, East Dulwich, London.
- 2123 (1911). Rubber aprons in paper making. R. Marx, 133 Finsbury Pavement, London.
- 2180 (1911). Tire attachments to rims. J. H. Mobley, Dunstable.
- 2195 (1911). Improvements in golf balls. P. A. Martin, Granville street, and J. Stanley, 137 Ivor Road, Sparkhill—both in Birmingham.
- 2202 (1911). Molding heel pads. S. Cooke and W. C. Davis, 58 High Bank, Gorton, Manchester.
- 2228 (1911). Guide rollers for ropes. J. R. Douglas, Box 104, Benoni, Transvaal.
- 2235 (1911). Flexible pipe for collapsible baths. W. A. Laver, 61 Victoria Park Road, London.
- 2252 (1911). Elastic tire bodies and cores. Soc. Fermière De l'Automatique Ducasle, 138, Avenue Malakoff, Paris.
- 2263 (1911). Rubber strips in draught excluders. W. D. Tucker, Lawrence Road, Tottenham, London.
- 2297 (1911). Winding fabrics round pneumatic tires. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 2326 (1911). Tire inflating valves. A. Scherber, Markscheider, Kladno, Austria.
- *2338 (1911). Cow milkers. D. Klein, Spokane, Washington, U. S. A.
- 2346 (1911). Rubber washers in horticultural frames. L. H. Chase, Greenhill Road, Liverpool.
- 2357 (1911). Air tubes in pneumatic tires. J. B. de La Fuente, 11 Prim, Madrid.
- 2358 (1911). Electric heating. A. Trepreau, 34 Avenue de l'Île, Joinville-le-Pont, Seine, France.
- 2378 (1911). Rubber graining pads. A. J. Boulton, 111 Hatton Garden, London.
- 2391 (1911). Non-refillable bottles. J. Donges, Drayton, Queensland, Australia.
- 2477 (1911). Rubber tires on litter carriages. J. E. Arnold, 6 Giltspur street, London.
- 2478 (1911). Extracting crude rubber. L. Guiguet, 70 Rue d'Alsace, Lyon-Villeurbanne, France.
- 2508 (1911). Rubber tapping knives. F. A. G. Pape, 49 Fenchurch street, London.

- 2526 (1911). Dissolving rubber. H. N. D'A. Drew, Greville street, Prahan, Victoria, Australia.
- 2538 (1911). Rubber pulley blocks for motorcycles. H. S. Yoxall, and C. W. Thorneycroft, Oliver street Works, Birmingham.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 30, 1912.]
- 2638 (1911). Breathing apparatus. R. H. Davis, and Siebe Gorman & Co., 187 Westminster Bridge Road, London.
- 2651 (1911). Rubber ropes for tires. H. Brook, 193 Church street, Blackpool, and J. C. and H. H. Burton, Granby Rubber Works, Post Office Place, Leicester.
- 2823 (1911). Rubber covers for pneumatic tires. B. Grebert, 121 Boulevard Victor Hugo, Lille, France.
- 2931 (1911). Blowers for threading loom shuttles. W. A. Redman, J Netherfield Road, Nelson, Lancashire, and J. K. Redman, 22 Park Road, Barnoldswick, Yorkshire.
- *2962 (1911). Waterproofing leather. E. N. Quirin, 119 Lo. Main street, Mansfield, Mass., and J. H. Rochester, New Hampshire—both in U. S. A.
- 2976 (1911). Rubber heels. T. Gare, 250 Bristol Road, Edgbaston, near Birmingham.
- 2998 (1911). Elastic tire bodies and cores. A. Ducasle, 30 Avenue de Neuilly, Neuilly-sur-Seine, France.
- 2999 (1911). Improvements in vehicle wheels. E. Bloch and R. Favard, 37 Rue de St. Petersburg, Paris.
- 3049 (1911). Extracting rubber from plants. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 3050 (1911). Cutting up india-rubber tubes. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 3085 (1911). Washers for tube joints. F. Wood, 62 Boston street, Hulme, Manchester.
- 3101 (1911). Washers for vehicle springs. J. R. Churchill, 22 Abbeyfield Road, Sheffield.
- 3133 (1911). Printing blankets. F. W. Adams, Glenleigh, Greys Road, Eastbourne.
- 3210 (1911). Tap stoppers. G. Koppenhagen, 9 Great Tower street, London.
- 3231 (1911). Feed rolls for envelope making machinery. W. E. Lake, 7 Southampton Buildings, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 435,759 (October 27, 1911). P. Wernicke. Process and appliance for filling molds for pressing plastic substances.
- 435,809 (January 7). H. Carroll. Process of rubber regeneration for industrial uses.
- 435,867 (October 31). H. A. B. Anthony. Improvements in pneumatic tires.
- 435,919 (November 3). L. Rustin. Antiskid device for wheels.
- 435,937 (November 4). A. Weber. Pneumatic tires.
- 435,997 (November 6). T. Mitchell. Improvements in pneumatic and other elastic tires.
- 435,981 (November 4). J. Mitchell. Improvements in soles and movable, interchangeable heels.
- 436,111 (January 14). C. Morel. Elastic tires for road vehicles.
- 436,217 (October 18). Savage Tire Co. Pneumatic tires.
- 436,296 (November 11). J. A. Meunier. Unpuncturable pneumatic wheel for vehicles.
- 436,376 (January 20). M. Siramy. Cover for pneumatic tire.
- 436,552 (November 18). H. Potaud. Improvements in elastic tires.
- 436,588 (November 21). Salzmann & Co. Rubber covers for automobile tires.
- 436,598 (November 21). De Laaki & Trapp Circular Woven Tire Company. Appliance for adjusting pneumatic tires.
- 436,616 (November 21). G. Charvet. Wheel with elastic tire.
- 436,667 (November 22). J. Bernard. Pneumatic wheel.
- 436,694 (November 24). H. Magelsen. Process for manufacture of an elastic, acid-resisting, incombustible and impermeable substance.
- 436,823 (November 24). C. Ville. Machine for manufacture of pneumatic tires for automobiles.
- 436,978 (November 29). L. V. J. Rougeaux. Easily adjusted spare tire.
- 437,000 (November 30). R. H. Pybus and E. M. Pybus. Improvements in processes for manufacture of spongy elastic substances.
- 437,009 (February 6). H. Brionne. Protective cover for pneumatic tires.
- 437,153 (December 4). Gebrüder Häberer. Rubberized fabric made from bark fibre for balloons and flying machines.
- 437,172 (February 10). E. H. Fouard and C. Jovignot. New product, on a foundation of rubber resin, for the impermeabilization of porous walls and for application to those not of porous character.
- 437,275 (December 7). F. X. Guillaumon. Movable nail for antiskid appliances.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 247,528 (from December 25, 1910). Josef Marx, Königstein, Taunus. Leather covers for pneumatic tires.
- 247,961 (from September 27, 1911). Georg Wirth, Wien. Sprayer for inhalation purposes.
- 247,973 (from July 3, 1910). Morris Metallic Packing Co., Philadelphia. Piston rod packing.
- 248,027 (from January 19, 1911). Fritz Förstermann, Hamburg. Erasive rubber holder.

Review of the Crude Rubber Market.

THE London market during the last days of May was notably affected by the Whitsuntide holidays, which had caused the third May auction to be held on 21st instead of 28th. During the first ten days of June, business was remarkably quiet, the price for fine Pará of 4s. 7½d., with which May had closed being only fractionally improved, 4s. 8d. being reached on June 8. The relatively protracted abstention of consumers was then broken by active inquiry during the ensuing week; with the result that 4s. 11d. was attained on the 12th, this figure constituting the high-water mark of the month. Demand then gradually slackened, with the result that prices fell off during the later part of the month; the quotation on 25th (at time of writing) being 4s. 9d.

In explanation of these conditions, it is stated that consumers see a prospective advantage in holding off, except for the purpose of filling immediate requirements. On the other hand, an element of strength was afforded by reports to the effect that prominent rubber interests were buying extensively in the Brazilian markets, particularly at Manáos.

After the putting forward of the third series of May auctions of plantation rubber, and the offering during that month of about 1,750 tons by public sale, the reduction of the total offered during the two sales of June to about 700 tons, constituted to the steadiness which developed itself on both occasions. Prices displayed only a slight variation from those of the larger auctions held during May. This reduction was in part due to the existing labor troubles impeding dock and warehouse work.

Business on the continent partook to a great extent of the character reported from London. The advance in fine Pará, which took place towards the middle of the month, was reported to be due to the effects of continental purchases. With the falling off in demand, prices again gave way.

Consumption is still the dominant factor in the situation. The heavy increase of Eastern plantation supplies has so far been absorbed by the market, but all connected with the industry are closely watching every new or increased use of rubber.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and June—the current date.

PARÁ.	July 1, '11.	June 1, '12.	June 29, '12.
Islands, fine, new.....	92@ 93	105@106	100@101
Islands, fine, old.....	94@ 95	107@108	.....
Upriver, fine, new.....	97@ 98	109@110	110@111
Upriver, fine, old.....	101@102	112@113	115@116
Islands, coarse, new.....	58@ 59	57@ 58	54@ 55
Islands, coarse, old.....	.....	.....	.....
Upriver, coarse, new.....	81@ 82	89@ 90	84@ 85
Upriver, coarse, old.....	83@ 84	.....	.....
Cametá	64@ 65	65@ 66	63@ 64
Caucho (Peruvian) ball.....	80@ 81	87@ 88	82@ 83
Caucho (Peruvian) sheet.....	62@ 63	.....	.....

PLANTATION PARÁ.

Fine smoked sheet.....	114@115	118@119	118@119
Fine pale crepe.....	113@114	119@120	117@118
Fine sheets and biscuits.....	110@111	114@115	113@114

CENTRALS.

Esmeralda, sausage.....	77@ 78	82@ 83	82@ 83
Guayaquil, strip .....	.....	.....	.....
Nicaragua, scrap	77@ 78	80@ 81	80@ 81
Panama .....	.....	.....	.....
Mexican, plantation, sheet.....	.....	90@ 95	.....
Mexican, scrap	75@ 76	81@ 82	80@ 81
Mexican, slab .....	.....	.....	.....
Mangabeira, sheet .....	.....	.....	.....

Guayule	43@ 44	55@ 56	55@ 56
Balata, sheet .....	.....	89@ 90	85@ 86
Balata, block .....	.....	55@ 56	53@ 54

AFRICAN.

Lopori ball, prime.....	92@ 93	.....	.....
Lopori, strip, prime.....	.....	.....	.....
Aruwimi	87@ 88	.....	.....
Upper Congo, ball, red.....	89@ 90	107@108	.....
Ikelemba .....	.....	.....	.....
Sierra Leone, 1st quality.....	84@ 85	94@ 95	94@ 95
Massai, red	84@ 85	95@ 96	95@ 96
Soudan, Niggers .....	.....	.....	.....
Cameroon, ball	58@ 59	66@ 67	65@ 66
Benguela	64@ 65	.....	.....
Madagascar, pinky	75@ 76	.....	85@ 86
Accra, flake	25@ 26	27@ 28	27@ 28

EAST INDIAN.

Assam	78@ 79	.....	.....
Pontianak	6¼@6¼	5¼@5¼	5¼@ 6
Borneo .....	.....	.....	.....

Late Pará cables quote:

Per Kilo.	Per Kilo.
Islands, fine	4\$100
Islands, coarse	2\$100
Upriver, fine	5\$750
Upriver, coarse.....	4\$250
Exchange	16 7/32d.

Latest Manáos advices:

Upriver, fine	5\$700	Exchange	16½d.
Upriver, coarse	3\$900	.....	.....

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The market for commercial paper has continued easy through June, with a fairly good demand from city and out-of-town banks for the best rubber names at 4@4½ per cent., and those not so well known 5@5½ per cent., and some 5¼ per cent."

NEW YORK PRICES FOR MAY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.09@1.12	\$0.93@1.28	\$2.35@2.80
Upriver, coarse .....	.89@ .92	.82@ .89	1.60@1.82
Islands, fine	1.05@1.10	.92@1.22	2.26@2.72
Islands, coarse .....	.58@ .63	.58@ .67	.93@1.09
Cametá .....	.65@ .67	.67@ .76	1.10@1.27

African Rubbers.

NEW YORK STOCKS (IN TONS).

May 1, 1911.....	98	December 1, 1911.....	60
June 1	90	January 1, 1912.....	58
July 1	90	February 1	150
August 1	90	March 1	90
September 1.....	112	April 1	80
October 1	67	May 1	62
November 1.....	45	June 1	94

Amsterdam.

Joostens & Janssen report [June 6, 1912]:

Interest is expressed in the fact that the quantity announced for sale on 21st inst. will be about 47¼ tons in all, as compared with about 18 tons offered at the May sales. The assortment is as follows: 37 tons Hevea; 7¼ tons Ficus; 2 tons Castilloa; 1 ton Sumatra; ¼ ton Guatemala.

PARA ARRIVALS.

While during the last five years, rubber prices have witnessed remarkable fluctuations, and the considerably augmented production of plantation rubber has altered the conditions of supply, arrivals at Pará have kept at a relatively steady level. As will be seen by the annexed table the figures for the years ending June 30, 1907-08 to 1910-11 were, respectively, 36,650, 38,065, 39,165 and 37,530 tons; the yearly average being thus 37,852 tons. The total for the year 1911-1912 just closed has been 38,530 tons, or about two per cent. above the average for the preceding four years.

Apportioning the years' receipts into quarters the following results will be found:

	Tons.
July 1 to September 30, 1911.....	5,630
October 1 to December 31, 1911.....	10,370
January 1 to March 31, 1912.....	14,110
April 1 to June 28, 1912.....	8,420

Total 38,530

The largest proportion was thus as usual in the first three months of the calendar year.

From the figures quoted it will be seen that Brazil, instead of diminishing its production of rubber, as has been asserted to be the case, has fully maintained it, even registering a slight increase.

	1907-08.	1908-09.	1909-10.	1910-11.	1911-12.
July.....tons	1,370	1,300	1,400	2,340	1,410
August.....	1,500	1,890	1,870	1,870	1,590
September.....	2,410	2,355	2,020	1,980	2,630
October.....	3,200	3,460	3,275	3,170	2,990
November.....	3,200	3,430	4,640	3,790	3,550
December.....	2,560	3,300	3,510	2,640	3,830
January.....	4,860	5,480	5,490	4,130	4,860
February.....	5,340	5,040	4,760	5,795	4,850
March.....	4,240	4,140	5,210	3,540	4,400
April.....	3,100	3,760	3,600	3,490	3,080
May.....	3,210	2,340	2,170	3,060	3,030
June.....	1,660	1,570	1,220	1,725	2,310

Total..... 36,650 38,065 39,165 37,530 38,530

[a To and including June 25, 1912.]

Aggregate figures covering 12 years show an increase during that time of more than 40 per cent.

	1900-01.....tons	1906-07.....tons	1907-08.....tons	1908-09.....tons	1909-10.....tons	1910-11.....tons	1911-12.....tons
1900-01.....	27,610						
1901-02.....	30,000						
1902-03.....	29,850						
1903-04.....	36,580						
1904-05.....	33,060						
1905-1906.....	34,490						
1906-07.....		38,005					
1907-08.....		36,650					
1908-09.....		38,065					
1909-10.....		39,165					
1910-11.....		37,530					
1911-12.....		38,530					

[a To and including June 25, 1912.]

'WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

		January 5, 1912	
July 7, 1911	4/2½	January 12	4/5½
July 14	4/5½	January 19	4/5½
July 21	4/7	January 26	4/8
July 28	4/8	February 2	4/7
August 4	4/7½	February 9	4/6½
August 11	4/7½	February 16	4/6½
August 18	4/7½	February 23	4/7½
August 25	4/10½	March 1	4/7½
September 1	4/8½	March 8	4/9
September 8	4/9	March 15	4/10½
September 15	5/	March 22	5/1½
September 22	4/10½	March 29	4/11½
September 29	4/8	April 5	4/11
October 6	4/7	April 12	4/11
October 13	4/5	April 19	4/10½
October 20	4/6½	April 25	4/9
October 27	4/4	May 3	4/7½
November 3	4/3	May 10	4/7½
November 10	4/4½	May 17	4/7½
November 17	4/3	May 24	4/7½
November 24	4/3½	May 31	4/7½
December 1	4/4½	June 7	4/8½
December 8	4/5½	June 14	4/10
December 15	4/4½	June 21	4/9½
December 22	4/4		
December 29	4/3½		

Liverpool.

WILLIAM WRIGHT & Co. report [June 1]:

Fine Pará.—Demand throughout the month has been dull, but prices have remained very steady, the principal operators acting cautiously; therefore any general resumption of trade inquiry would mean an increase in values. It must be remembered that we are now in the months of small receipts, especially for hard cure, and that as a rule the American demand for autumn trade requirements begins to materialize in July, and it is an undoubted fact that there is very little "free rubber" offering. Supplies of plantation will doubtless be plentiful, but this will all be wanted either for direct orders or on orders to cover. Closing value: Upriver fine, 4s. 7½d. [\$1.125]; Island, 4s. 5¼d. [\$1.08].

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.				
	Fine and Medium.	Coarse.	1912.	1911.	1910.
Stocks, April 30.....tons	277	36 =	313	561	143
Arrivals, May.....	724	438 =	1,162	909	332
Aggregating	1,001	474 =	1,475	1,470	475
Deliveries, May.....	838	456 =	1,294	1,119	369
Stocks, May 31.....	163	18 =	181	351	106
	1912.	1911.	1910.	1912.	1911.
	Pará.	England.			
Stocks, April 30.....tons	2,770	4,160	260	990	1,470
Arrivals, May.....	2,410	2,010	1,340	580	817
Aggregating	5,180	6,170	1,600	1,570	2,287
Deliveries, May.....	2,185	1,965	925	840	362
Stocks, May 31....	2,995	4,205	675	730	1,925
				1912.	1911.
World's visible supply, May 31.....tons				5,025	7,408
Pará receipts, July 1 to May 31.....				30,380	29,200
Pará receipts of caucho, same dates.....				6,650	6,800
Afloat from Pará to United States, May 31				549	347
Afloat from Pará to Europe, May 31.....				570	580

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier. On May 31 the stock had again increased.

	January 31, 1911.....tons	September 30, 1911.....tons
February 28.....	3,787	October 31..... 3,320
March 31.....	4,214	November 30..... 3,050
April 30.....	5,104	December 31..... 2,675
May 31.....	5,350	January 31, 1912..... 3,370
June 30.....	4,545	February 29..... 3,240
July 31.....	3,884	March 31..... 2,730
August 31.....	3,450	April 30..... 2,770
		May 31..... 2,995

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

JUNE 3.—By the steamer *Aidan*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	141,900	42,200	168,700	132,500 =	485,300
Henderson & Korn	102,100	17,900	64,300	62,000 =	246,300
General Rubber Co.....	113,500	34,200	74,600	11,800 =	234,100
New York Commercial Co..	78,000	23,200	41,000	10,600 =	152,800
Robinson & Co.....	48,600	7,500	41,500	26,400 =	124,000
Meyer & Brown.....	15,700			104,900 =	120,600
De Lagotellerie & Co.....	14,300	3,200	37,000		54,500

Total 514,100 128,200 427,100 348,200 = 1,417,600

JUNE 10.—By the steamer *Goyas*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss.....	11,800	1,100	34,300		47,200
New York Commercial Co..	4,500	1,600	16,200	20,500 =	42,800
General Rubber Co.....	6,700	1,900	20,300	6,900 =	35,800
Meyer & Brown.....				39,200 =	39,200
De Lagotellerie & Co.....	2,100	700	23,800		26,600
G. Amsinck & Co.....	3,100	800	700		4,600
Robinson & Co.....			4,000		4,000

Total 28,200 6,100 99,300 66,600 = 200,200

JUNE 15.—By the steamer *Ucayali*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss.....	163,200	33,700	124,900	62,700 =	384,500
New York Commercial Co..	95,600	47,800	69,700	6,400 =	219,500
Henderson & Korn.....	31,300	5,600	21,800	10,300 =	69,000
Meyer & Brown.....				52,500 =	52,500
Robinson & Co.....	21,800		16,100		37,900
General Rubber Co.....	22,800	500	6,200	2,500 =	32,000
Hagemeyer & Brunn.....	15,700	1,900	2,100		19,700
Thomsen & Co.....				7,800 =	7,800

Total 250,400 89,500 240,800 142,200 = 822,900

JUNE 21.—By the steamer *Crispin*, from Manáos and Pará:

Arnold & Zeiss.....	102,800	24,700	104,600	72,600	304,700
New York Commercial Co..	28,200	19,700	30,600	4,000	82,500
Robinson & Co.....	44,800	12,200	12,500	.....	69,500
Henderson & Korn.....	23,200	2,800	22,000	.....	50,000
G. Amsinck & Co.....	.....	.....	12,000	.....	12,000
General Rubber Co.....	.....	.....	7,400	.....	7,400
Hagemeyer & Brunn.....	.....	.....	2,900	.....	2,900
Meyer & Brown.....	.....	.....	3,300	.....	3,300
Total	201,000	59,400	200,300	76,600	537,300

JUNE 24.—By the steamer *Clement*, from Manáos and Pará:

New York Commercial Co..	34,900	16,600	42,700	25,000	119,200
Arnold & Zeiss.....	35,700	11,500	86,400	4,500	138,100
Meyer & Brown.....	.....	.....	13,800	24,200	38,000
De Lagotellerie & Co.....	12,100	1,400	20,500	.....	34,000
General Rubber Co.....	24,100	700	5,800	.....	30,600
Robinson & Co.....	200	1,100	7,200	6,000	14,500
Henderson & Korn.....	4,700	300	2,600	.....	7,600
G. Amsinck & Co.....	1,100	.....	5,900	.....	7,000
Total	112,800	31,600	184,900	59,700	389,000

PARA RUBBER VIA EUROPE.

MAY 24.—By the <i>Lusitania</i> =Liverpool:	Pounds.
Raw Products Co. (Fine).....	11,500
Raw Products Co. (Coarse).....	33,500
MAY 27.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:	
Robert Badenhop (Fine).....	9,000
Ed. Maurer (Fine).....	3,500
MAY 31.—By the <i>Caronia</i> =Liverpool:	
New York Commercial Co. (Fine).....	80,000
JUNE 3.—By the <i>Panama</i> =Mollendo:	
N. Y. Commercial Co. (Fine).....	2,000
F. Rosenstern & Co. (Fine).....	3,000
JUNE 3.—By the <i>Campania</i> =Liverpool:	
Robinson & Co. (Fine).....	45,000
JUNE 7.—By the <i>Mauretania</i> =Liverpool:	
General Rubber Co. (Fine).....	45,000
Raw Products Co. (Fine).....	22,500
JUNE 8.—By the <i>Pretoria</i> =Hamburg:	
Raw Products Co. (Coarse).....	11,000
JUNE 11.—By the <i>Saramacca</i> =Bolívar:	
Gen. Export Com. Co. (Fine).....	115,000
Gen. Export Com. Co. (Coarse).....	37,000
JUNE 17.—By the <i>Celtic</i> =Liverpool:	
Wallace L. Gough Co. (Fine).....	11,500
JUNE 22.—By the <i>Maracas</i> =Bolívar:	
Yglesias Lobo & Co. (Fine).....	2,000
Yglesias Lobo & Co. (Coarse).....	3,500
JUNE 24.—By the <i>Campania</i> =Liverpool:	
Henderson & Korn (Coarse).....	11,500
Robinson & Co. (Coarse).....	11,500
Raw Products Co. (Coarse).....	3,500

OTHER NEW YORK ARRIVALS.
CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

MAY 23.—By the <i>Orotava</i> =Colombia:	Pounds.
G. Amsinck & Co.....	9,000
A. M. Capen's Sons.....	8,000
Mecke & Co.....	6,000
E. Nelson Tibbals & Co.....	6,000
J. Sambrada Co.....	1,500
Chas. E. Griffin.....	1,000
Schlutte Bunemann & Co.....	1,000
For Antwerp.....	11,000
MAY 23.—By the <i>Momms</i> =New Orleans:	
A. N. Rotholz.....	6,500
Robinson & Co.....	2,500
Eggers & Heinlein.....	2,500
Charles T. Wilson.....	2,000
Scholz & Marturet.....	1,000
MAY 24.—By the <i>Indian Prince</i> =Bahia:	
A. Hirsch & Co.....	90,000
J. H. Rosback Bros.....	35,000
A. D. Hitch & Co.....	20,000
MAY 27.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:	
Arnold & Zeiss.....	7,000
MAY 27.—By the <i>Camaguey</i> =Tampico:	
New York Commercial Co.....	*110,000
Ed. Maurer.....	*100,000
Arnold & Zeiss.....	*40,000
For Hamburg.....	*50,000
MAY 27.—By the <i>Mexico</i> =Frontera:	
E. Steiger & Co.....	5,000
Laurence Johnson & Co.....	5,000
Strube & Ulitz.....	3,500
New York Commercial Co.....	3,300
Harburger & Stack.....	2,000
General Export Commercial Co.....	2,000
Herman Klugge.....	1,000
Meyer & Brown.....	1,000
Graham Hinkley Co.....	1,000
MAY 28.—By the <i>Advance</i> =Colon:	
G. Amsinck & Co.....	7,500
Andean Trading Co.....	4,000
Dumarest Bros. & Co.....	2,000
Caballero & Blanco.....	1,500
Schlutte Bunemann & Co.....	1,500
Laurence Johnson & Co.....	1,000
Lanman & Kemp.....	1,000
MAY 31.—By the <i>Prinz Joachim</i> =Colon:	
G. Amsinck & Co.....	10,000
Brandon & Bros.....	2,000
J. J. Julia & Co.....	1,500
J. Sambrada Co.....	1,500
Mecke & Co.....	1,500
L. Schepp Co.....	1,000
L. Johnson & Co.....	1,000

JUNE 1.—By the *Almirante*=Colombia:

Maitland, Coppell & Co.....	4,500
Isaac Brandon & Bros.....	2,000
R. del Castello & Co.....	1,500
For Antwerp.....	3,000

JUNE 3.—By the *Esperanza*=Frontera:

Harburger & Stack.....	4,000
E. Steiger & Co.....	3,500
Hawes Willard & Co.....	2,500
Meyer & Brown.....	2,000
New York Commercial Co.....	1,500
Herman Klugge.....	1,000
H. W. Peabody & Co.....	1,000

JUNE 3.—By the *El Onelia*=Galveston:

Chas. T. Wilson.....	*25,000
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JUNE 3.—By the *Amsterdam*=Rotterdam:

A. Hirsch & Co.....	34,000
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JUNE 4.—By the *Matanzas*=Tampico:

Ed. Maurer.....	*225,000
Arnold & Zeiss.....	*55,000
New York Commercial Co.....	*34,000
H. Marquard & Co.....	*10,000
For Hamburg.....	*50,000

JUNE 5.—By the *Thames*=Colombia:

G. Amsinck & Co.....	11,000
A. Helde.....	9,000
A. M. Capen & Sons.....	7,000
J. Sambrada Co.....	5,000
Brandon & Bros.....	2,000
E. N. Tibbals Co.....	2,000
Neuss Henslein Co.....	1,500
Chas. E. Griffin.....	1,000

JUNE 5.—By the *Antilles*=New Orleans:

Eggers & Heinlein.....	4,000
Wessels Kulenkampf & Co.....	2,000
Unknown.....	10,000

JUNE 7.—By the *Santa Martha*=Colon:

G. Amsinck & Co.....	5,000
Pablo Calvet Co.....	1,500
R. del Castello Co.....	1,000

JUNE 8.—By the *Voltaire*=Bahia:

A. Hirsch Co.....	8,000
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JUNE 8.—By the *Pretoria*=Hamburg:

Arnold & Zeiss.....	5,500
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JUNE 10.—By the *Alianza*=Colon:

G. Amsinck & Co.....	18,000
Piza Nephews Co.....	3,000
Brandon & Bros.....	3,000
Wessels Kulenkampf Co.....	1,500
R. G. Barthold.....	1,500
Mecke & Co.....	1,000
Lanman & Kemp.....	1,000
Pablo Calvet Co.....	1,000

JUNE 12.—By the *Prinz August Wilhelm*=Colon:

G. Amsinck & Co.....	9,000
A. Rosenthal's Sons.....	4,500
A. Helde.....	3,500
Manhattan Rubber Mfg. Co.....	3,000
P. Tremano Co.....	1,500
Pablo Calvet Co.....	1,500
Isaac Brandon & Bros.....	1,000

JUNE 12.—By the *El Siglo*=Galveston:

Continental Mexican Rub. Co.....	*130,000
Charles T. Wilson.....	*10,000

JUNE 13.—By the *Santiago*=Tampico:

New York Commercial Co.....	*70,000
J. W. Wilson & Co.....	*50,000
Ed. Maurer.....	*45,000

JUNE 15.—By the *Colon*=Colon:

G. Amsinck & Co.....	7,000
Hirzel, Feltman & Co.....	3,000
Mecke & Co.....	2,000
J. Sambrada Co.....	2,000
Meyer Hecht.....	1,000
Gillespie Bros. & Co.....	1,000

JUNE 17.—By the *New York*=London:

Charles T. Wilson.....	*11,000
------------------------	---------

JUNE 18.—By the *Monterey*=Frontera:

J. W. Wilson & Co.....	6,000
E. Steiger & Co.....	5,500
Harburger & Stack.....	5,000
Meyer & Brown.....	1,000
In transit.....	6,000

JUNE 19.—By the *Prinz Sigismund*=Colon:

Wessels Kulenkampf & Co.....	2,500
Manhattan Rubber Mfg. Co.....	2,000
G. Amsinck & Co.....	1,000
Isaac Brandon & Bros.....	1,000

JUNE 20.—By the *Titian*=Bahia:

G. Amsinck & Co.....	9,000
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JUNE 20.—By the *President Grant*=Hamburg:

Ed. Maurer.....	22,500
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JUNE 20.—By the *Bayano*=Tampico:

New York Commercial Co.....	*135,000
Ed. Maurer.....	*55,000
J. W. Wilson & Co.....	*40,000
H. Marquardt Co.....	*22,000

JUNE 20.—By the *Trent*=Colombia:

A. M. Capen's Sons.....	3,500
J. Sambrada Co.....	1,000
Isaac Brandon & Bros.....	1,000

JUNE 20.—By the *Creole*=New Orleans:

Manhattan Rubber Mfg. Co.....	5,000
A. N. Rotholz.....	1,500

JUNE 21.—By the *El Monte*=Galveston:

Continental & Mexican Co.....	*125,000
Charles T. Wilson.....	*11,000

JUNE 24.—By the *Advance*=Colon:

G. Amsinck & Co.....	4,500
Dumarest Bros. Co.....	3,000
Pablo, Calvet & Co.....	2,000
F. Rosenstern & Co.....	1,500
Roldau & Van Sickle.....	1,000

JUNE 24.—By the *Camaguey*=Tampico:

Ed. Maurer.....	*165,000
H. Marquardt & Co.....	*11,000
For Europe.....	*35,000

JUNE 24.—By the *Albrija*=Colombia:

Maitland, Coppell & Co.....	13,500
Caballero & Blanco.....	1,000

JUNE 24.—By the *Mexico*=Vera Cruz:

G. Amsinck & Co.....	4,500
H. Marquardt & Co.....	3,500
American Trading Co.....	3,000
Harburger & Stack.....	2,000

JUNE 24.—By the *Byron*=Bahia:

Adolph Hirsch & Co.....	10,000
A. D. Hitch.....	9,000

JUNE 25.—By the *Prinz Joachim*=Colon:

G. Amsinck & Co.....	5,000
J. Sambrada Co.....	1,000
Gillespie Bros. Co.....	1,000
Isaac Brandon & Bros.....	1,000

EAST INDIAN.

[*Denotes plantation rubber.]

MAY 23.—By the *Mesaba*=London:

General Rubber Co.....	*125,000
Raw Products Co.....	*35,000
Ed. Maurer.....	*35,000
Charles T. Wilson.....	*25,000
Arnold & Zeiss.....	*25,000
Rubber Trading Co.....	*7,000
Robert Badenhop.....	*9,000
Charles T. Wilson.....	22,000

MAY 27.—By the *St. Paul*=London:

New York Commercial Co.....	*50,000
Arnold & Zeiss.....	*34,000
Meyer & Brown.....	*5,000
In transit.....	*7,000
Arnold & Zeiss.....	9,000

MAY 28.—By the *Minnetonka*=London:

General Rubber Co.....	*90,000
Charles T. Wilson.....	*15,000
Raw Products Co.....	*9,000
General Rubber Co.....	22,500
Charles T. Wilson.....	11,500

MAY 28.—By the *Jeserie*=Singapore:

L. Littlejohn & Co.....	*50,000
Ed. Maurer.....	*40,000
E. Bonstead Co.....	*40,000
Otto Ienstein Co.....	*28,000
Haebler & Co.....	*15,000
New York Commercial Co.....	*7,000
A. W. Brunn.....	*6,000
Ed. Maurer.....	25,000
United Malaysian Rubber Co.....	22,500
Haebler & Co.....	18,000
Arnold & Zeiss.....	5,500

MAY 28.—By the *Saldanha*=Colombo:

Meyer & Brown.....	*38,000
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MAY 29.—By the *Zeeland*=Antwerp:

Meyer & Brown.....	*65,000
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MAY 29.—By the *Indragani*=Singapore:

Ed. Maurer.....	*6,000
L. Littlejohn & Co.....	*11,000
Wallace L. Gough Co.....	*30,000
Ed. Maurer.....	70,000
United Malaysian Rubber Co.....	18,000

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Venezuelan Block Balata

Ceylon Plantation Rubber

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MAY 31.—By the <i>Majestic</i> =London:		
Arnold & Zeiss.....	200,000	
W. H. Stiles.....	15,000	
New York Commercial Co.....	15,000	
Ed. Maurer.....	13,500	
Rubber Trading Co.....	5,000	*249,000
JUNE 3.—By the <i>Philadelphia</i> =London:		
New York Commercial Co.....	56,000	
Arnold & Zeiss.....	45,000	
Ed. Maurer.....	34,000	
Meyer & Brown.....	9,000	
In transit.....	65,000	*209,000
JUNE 4.—By the <i>Minneapolis</i> =London:		
Raw Products Co.....	9,000	
Charles T. Wilson.....	9,000	
Ed. Maurer.....	7,000	*25,000
JUNE 4.—By the <i>Vaderland</i> =Antwerp:		
Meyer & Brown.....	45,000	
W. H. Stiles.....	7,000	*52,000
JUNE 6.—By the <i>Oceanic</i> =London:		
Rubber Trading Co.....	9,000	
Arnold & Zeiss.....	7,000	
L. Blitz.....	4,500	
W. H. Stiles.....	4,500	*25,000
JUNE 10.—By the <i>St. Louis</i> =London:		
Arnold & Zeiss.....	35,000	
Ed. Maurer.....	15,000	
Meyer & Brown.....	13,500	
Wallace L. Gough Co.....	8,000	
Charles T. Wilson.....	5,000	
W. H. Stiles.....	5,000	*82,000
JUNE 10.—By the <i>Kalama</i> =Singapore:		
L. Littlejohn & Co.....	15,000	
Ed. Maurer.....	13,500	
Otto Isenstein Co.....	7,000	
Wallace L. Gough Co.....	5,000	
Haebler & Co.....	5,000	
New York Commercial Co.....	3,000	*48,500
JUNE 11.—By the <i>Lapland</i> =Antwerp:		
Meyer & Brown.....	50,000	
JUNE 12.—By the <i>Rabenfels</i> =Colombo:		
Meyer & Brown.....	93,000	
New York Commercial Co.....	15,500	
Ed. Maurer.....	7,000	
L. Blitz.....	7,000	
Robert Badenhop.....	4,500	
H. W. Peabody Co.....	4,500	*131,500
JUNE 12.—By the <i>Olympic</i> =London:		
New York Commercial Co.....	56,000	
James T. Johnstone.....	13,500	
Ed. Maurer.....	9,000	
Arnold & Zeiss.....	8,000	
In transit.....	55,000	*142,500
JUNE 14.—By the <i>Prince Burmes</i> =Singapore:		
Ed. Maurer.....	17,000	
Haebler & Co.....	7,000	24,000
JUNE 17.—By the <i>New York</i> =London:		
New York Commercial Co.....	85,000	
Ed. Maurer.....	45,000	
Arnold & Zeiss.....	13,500	
Meyer & Brown.....	12,500	
Charles T. Wilson.....	9,000	
W. H. Stiles.....	9,000	
Robinson & Co.....	5,000	
James T. Johnstone.....	4,000	
In transit.....	22,500	*205,500
JUNE 22.—By the <i>Montrose</i> =Singapore:		
Otto Isenstein & Co.....	30,000	
Ed. Maurer.....	25,000	
Wallace L. Gough Co.....	8,000	
L. Littlejohn & Co.....	5,000	
A. W. Brown.....	5,000	
New York Commercial Co.....	5,000	
Ed. Maurer.....	20,000	
Arnold & Zeiss.....	17,000	
Haebler & Co.....	11,000	
L. Littlejohn & Co.....	3,500	129,500
JUNE 22.—By the <i>Kasamba</i> =Colombo:		
Meyer & Brown.....	45,000	
New York Commercial Co.....	4,500	*49,500

JUNE 24.—By the *Compania*=Liverpool:
General Rubber Co..... *22,500

AFRICAN.

MAY 27.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:		
Ed. Maurer.....	34,000	
George A. Alden Co.....	25,000	
Meyer & Brown.....	22,500	
R. Badenhop.....	4,500	86,000
MAY 29.—By the <i>Hudson</i> =Bordeaux:		
Arnold & Zeiss.....	7,000	
Meyer & Brown.....	5,500	
Ed. Maurer.....	4,500	17,000
MAY 31.—By the <i>Carenia</i> =Liverpool:		
Rubber Trading Co.....	11,500	
Ed. Maurer.....	9,000	
George A. Alden Co.....	7,000	
W. L. Gough Co.....	4,500	
J. T. Johnstone.....	3,500	35,500
MAY 31.—By the <i>President Lincoln</i> =Hamburg:		
General Rubber Co.....	22,500	
Rubber Trading Co.....	5,500	
Arnold & Zeiss.....	5,000	33,000
JUNE 1.—By the <i>Provincia</i> =Lisbon:		
Ed. Maurer.....	22,500	
W. L. Gough Co.....	11,500	
JUNE 3.—By the <i>Compania</i> =Liverpool:		
Arnold & Zeiss.....	11,500	
General Rubber Co.....	7,000	
Henderson & Korn.....	5,000	23,500
JUNE 4.—By the <i>Chicago</i> =Havre:		
Raw Products Co.....	9,000	
JUNE 4.—By the <i>Vaderland</i> =Antwerp:		
W. L. Gough Co.....	20,000	
Arnold & Zeiss.....	15,000	35,000
JUNE 8.—By the <i>Pretoria</i> =Hamburg:		
Henderson & Korn.....	45,000	
Ed. Maurer.....	35,000	
George A. Alden & Co.....	15,000	
Meyer & Brown.....	10,000	
Rubber Trading Co.....	9,000	
Raw Products Co.....	6,000	
W. L. Gough Co.....	3,500	
R. Badenhop.....	2,500	126,000
JUNE 17.—By the <i>New York</i> =London:		
Ed. Maurer.....	11,500	
General Rubber Co.....	2,500	
George A. Alden Co.....	3,500	17,500
JUNE 17.—By the <i>Florida</i> =Havre:		
Meyer & Brown.....	100,000	
Arnold & Zeiss.....	70,000	170,000
JUNE 18.—By the <i>Kronland</i> =Antwerp:		
Rubber Trading Co.....	5,500	
JUNE 20.—By the <i>President Grant</i> =Hamburg:		
Ed. Maurer.....	45,000	
Meyer & Brown.....	33,500	
George A. Alden & Co.....	15,000	
Henderson & Korn.....	17,000	
Rubber Trading Co.....	13,500	
W. L. Gough Co.....	8,000	
Robert Badenhop.....	5,500	
General Rubber Co.....	4,500	142,000
JUNE 24.—By the <i>Compania</i> =Liverpool:		
Arnold & Zeiss.....	11,500	
James T. Johnstone.....	4,500	
General Rubber Co.....	5,500	21,500
JUNE 25.—By the <i>Vida</i> =Lisbon:		
George A. Alden & Co.....	11,000	
JUNE 10.—By the <i>St. Louis</i> =Havre:		
General Rubber Co.....	8,000	
Ed. Maurer.....	4,500	12,500
JUNE 10.—By the <i>Riojana</i> =Lisbon:		
General Rubber Co.....	67,000	
George A. Alden Co.....	11,000	78,000
JUNE 10.—By the <i>Amerika</i> =Hamburg:		
Rubber Trading Co.....	11,500	
Robert Badenhop.....	2,000	13,500

JUNE 10.—By the <i>Finland</i> =Antwerp:		
Rubber Trading Co.....	13,500	
JUNE 12.—By the <i>Cleveland</i> =Hamburg:		
Meyer & Brown.....	27,000	
General Rubber Co.....	16,000	
Ed. Maurer.....	10,000	
Rubber Trading Co.....	7,000	
W. L. Gough Co.....	6,500	
Robert Badenhop.....	5,500	72,000
JUNE 15.—By the <i>Roma</i> =Lisbon:		
Ed. Maurer.....	11,000	

GUTTA-JELUTONG.

MAY 27.—By the <i>Jesseric</i> =Singapore:		
L. Littlejohn & Co.....	600,000	
Haebler & Co.....	250,000	
George A. Alden & Co.....	250,000	
Wallace L. Gough Co.....	200,000	
Arnold & Zeiss.....	150,000	
W. R. Russell & Co.....	150,000	
Winter & Smilie.....	155,000	1,755,000
MAY 29.—By the <i>Indrasamah</i> =Singapore:		
L. Littlejohn & Co.....	525,000	
George Alden & Co.....	250,000	
Wallace L. Gough Co.....	200,000	
W. R. Russell & Co.....	225,000	1,200,000
JUNE 10.—By the <i>Kalamo</i> =Singapore:		
Wallace L. Gough Co.....	34,000	
JUNE 14.—By the <i>Prince Burmes</i> =Singapore:		
Haebler & Co.....	225,000	
L. Littlejohn & Co.....	225,000	
Wallace L. Gough Co.....	80,000	
Arnold & Zeiss.....	55,000	585,000
JUNE 22.—By the <i>Montrose</i> =Singapore:		
L. Littlejohn & Co.....	425,000	
Haebler & Co.....	175,000	
Wallace L. Gough Co.....	110,000	
Arnold & Zeiss.....	55,000	765,000

GUTTA-PERCHA.

MAY 22.—By the <i>Rotterdam</i> =Rotterdam:		
L. Littlejohn & Co.....	34,000	
MAY 27.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:		
Robert Soltan & Co.....	7,000	
MAY 27.—By the <i>Jesseric</i> =Singapore:		
L. Littlejohn & Co.....	40,000	
Haebler & Co.....	34,000	74,000
JUNE 20.—By the <i>President Grant</i> =Hamburg:		
Robert Soltan & Co.....	8,000	

BALATA.

JUNE 10.—By the <i>Mayaro</i> =Trinidad:		
Yglesias Lobo & Co.....	4,500	
Suzarte & Whitney.....	1,500	
George A. Alden & Co.....	1,000	7,000
JUNE 17.—By the <i>New York</i> =London:		
In transit.....	7,000	

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—MAY, 1912.

Imports:	Pounds.	Value.
India-rubber.....	9,548,645	\$8,764,497
Balata.....	28,829	28,829
Guayule.....	801,182	378,708
Gutta-percha.....	135,743	20,956
Gutta-jelutong (Pontianak).....	5,498,042	234,094
Total.....	16,032,441	\$9,426,849
Exports:		
India-rubber.....	117,400	\$102,413
Balata.....	12,000	7,600
Guayule.....	7,661	3,064
Gutta-percha.....	.....	.....
Reclaimed rubber.....	.....	16,042
Rubber scrap, imported.....	2,761,814	\$237,508
Rubber scrap, exported.....	354,002	47,029

EXPORTS OF INDIA-RUBBER FROM PARA FOR MAY, 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.				EUROPE.				TOTAL.	TOTAL.
	Fine.	Medium.	Coarse.	Cauch.	Fine.	Medium.	Coarse.	Cauch.		
Zarges, Berringer & Co.....	70,824	23,627	210,691	188,859	494,001	101,674	16,356	14,334	135,520	629,521
Ad. H. Alden, Ltd.....	37,661	5,867	52,745	30,546	126,819	101,700	14,302	32,771	192,968	319,787
R. O. Ahlers & Co.....	88,153	9,218	41,318	38,817	177,506	62,324	1,020	15,749	88,053	265,559
General Rubber Co. of Brazil.....	44,278	7,519	48,433	62,241	162,471	34,640	3,896	1,244	61,884	224,355
Suarez Hermanos & Co., Ltd.....	.....	.....	.....	.....	125,173	5,223	39,346	38,367	208,109	208,109
De Lagotellerie & Co.....	14,450	2,550	49,170	.....	66,170	5,780	.....	.....	71,950	71,950
Pires Teixeira & Co.....	10,030	1,020	5,280	.....	16,330	1,190	.....	.....	17,520	17,520
M. Ullmann & Co.....	.....	.....	.....	.....	7,049	1,064	4,347	4,200	16,660	16,660
Sundries.....	5,892	794	2,973	2,120	11,779	1,223	98	634	650	14,384
Itacoatiara, direct.....	.....	.....	.....	.....	3,110	.....	2,640	270	6,020	6,020
Manãos, direct.....	271,288	50,595	410,610	322,583	1,055,076	443,863	41,959	99,887	133,080	718,789
Iquitos, direct.....	365,835	92,064	165,271	163,765	786,935	155,632	26,386	45,959	189,840	1,204,752
.....	17,925	1,103	5,454	30,920	55,402	.....	.....	.....	.....	55,402
Total, May, 1912.....	655,048	143,762	581,335	517,268	1,897,413	599,495	68,345	145,846	322,920	1,136,606
Total, April, 1912.....	474,382	129,065	485,836	251,520	1,340,803	799,421	107,782	206,565	624,621	1,738,389
Total, March, 1912.....	928,549	268,394	828,225	639,217	2,664,385	1,114,992	169,333	317,312	619,521	2,221,158
Total, February, 1912.....	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,644	2,492,516
Total, January, 1912.....	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178



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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

	July 1.
Old rubber boots and shoes—domestic.....	9½@ 9¼
Old rubber boots and shoes—foreign.....	9 @ 9¼
Pneumatic bicycle tires.....	4½@ 4¾
Automobile tires.....	9 @ 9¼
Solid rubber wagon and carriage tires.....	9¼@ 9¾
White trimmed rubber.....	11 @ 11½
Heavy black rubber.....	4¼@ 5
Air brake hose.....	5½@ 5¾
Garden hose.....	1½@ 1¾
Fire and large hose.....	2½@ 2¾
Matting.....	7½@ 1

Antwerp.

RUBBER STATISTICS FOR MAY.

Details.	1912.	1911.	1910.	1909.	1908.
Stocks, April 30... kilos	437,513	599,114	470,468	607,787	717,913
Arrivals in May—					
Congo sorts.....	152,024	187,106	128,052	442,098	337,368
Other sorts.....	12,902	29,125	17,969	64,728	62,757
Plantation sorts.....	107,367	41,754	44,037	8,235	15,279
Aggregating.....	709,806	857,099	660,526	1,122,848	1,133,317
Sales in May.....	265,369	243,089	116,663	433,610	361,740
Stocks, May 31.....	444,437	614,010	543,863	689,238	771,577
Arrivals since Jan. 1—					
Congo sorts.....	1,243,101	1,259,621	1,299,338	1,443,130	1,859,791
Other sorts.....	58,637	235,093	138,138	433,700	236,491
Plantation sorts.....	514,692	299,316	222,131	96,600	48,480
Aggregating.....	1,816,430	1,794,030	1,659,607	1,973,430	2,144,762
Sales since Jan. 1.....	2,046,531	1,768,232	1,657,256	1,879,927	2,380,079

RUBBER ARRIVALS FROM THE CONGO.

MAY 21.—By the steamer *Bruxellesville*:

Bunge & Co.....	(Société Générale Africaine) kilos	23,800
do.....	(Chemins de fer Grand Lacs)	8,700
do.....	(Comptoir Commercial Congolais)	14,700
do.....	(Alberta)	1,100
Société Coloniale Anversoise.....	(Haut Congo)	4,250
do.....	(Cie. du Kasai)	51,000
do.....		2,400
L. & W. Van de Velde.....	(Comminiére)	9,000
do.....	(Comfina)	8,800
do.....		1,800
Osterrieth & Co.....	(Lubefu)	2,400
do.....		300
Charles Dethier.....	(American Congo Co.)	850 129,100

RUBBER ARRIVALS FROM THE CONGO.

JUNE 11.—By the steamer *Elisabethville*:

Bunge & Co.....	(Société Général Africaine) kilos	30,500
do.....	(Chemins de fer Grande Lacs)	2,800
do.....	(Comptoir Commercial Congolais)	8,300
do.....		900
Société Coloniale Anversoise.....	(Haut Congo)	6,390
do.....	(Cie. franç du Haut Congo)	5,375
L. & W. Van de Velde.....	(Cie. du Kasai)	83,500
do.....	(Comfina)	17,170
do.....	(Comminiére)	6,000
do.....	(Velde)	6,800
Congo Trading Co.....		4,000
Willart Freres.....		176,335

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to May 20, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain..... pounds.	947,187	2,205,112
To United States.....	669,141	1,268,902
To Belgium.....	127,606	489,501
To Germany.....	7,555	41,978
To Australia.....	16,013	37,655
To Canada.....	9,971	12,121
To Austria.....		11,920
To Japan.....	15,165	5,708
To Italy.....	3,597	4,692
To Norway and Sweden.....		39
To France.....	117	
To Holland.....	100	
To India.....	40	

Total..... 1,796,522 4,077,628

[Same period 1910—838,280 pounds; same 1909—359,661.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

	Singapore	Penang.	Port Swet-	Total.
	May 3.	April 30.	tenham.	1912.
Great Britain... pounds	3,214,710	2,270,432	6,874,146	12,359,288
United States.....	752,749			752,749
Japan.....	105,356			105,356
Continent.....	84,147	25,863	907,364	1,017,374
Australia.....	12,304			12,304
Ceylon.....		67,027	408,676	475,703
Total.....	4,169,266	2,363,322	8,190,186	14,722,774
Same period, 1911.....	1,903,169	1,480,300	4,494,251	7,877,720
Same period, 1910.....	1,012,863	671,186	2,622,166	4,306,215
Same period, 1909.....	832,793	1,113,491		1,946,284

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